THE

# AMERICAN JOURNAL OF PHARMACY.

MARCH, 1869.

## HISTORICAL MEMOIRS OF THE PHILADELPHIA COLLEGE OF PHARMACY. (PART I.)*

BY PROF. EDWARD PARRISH.

It must have been in the first or second month of the year 1821 that Peter K. Lehman, one of the old-school of Philadelphia druggists, whose business was located on the south side of Market street below Tenth street,† called in, one day, as was his wont, at the store of his neighbor, Henry Troth, then a thriving wholesale druggist on Market street below Seventh street,‡ and the two worthy druggists had a conversation of no little interest to us, as it seems to have led to the establishment of this College of Pharmacy.

Their talk grew out of the fact that the Trustees and Faculty of the University of Pennsylvania had but recently determined to extend their sphere of operations by teaching and graduating young apothecaries, and giving to the more respectable already established a title of honor corresponding somewhat to that of Doctor of Medicine, conferred upon physicians. The University did, indeed, proceed so far as to confer the degree of Master of Pharmacy upon sixteen of the apothecaries in the city, (April 5th, 1821) and one or more of these, trading in the immediate neighborhood, paraded this newly acquired title upon sign-boards and in the City Directory, to the great disgust of competitors.

The project of teaching the apprentices in the stores at the rather unsuitable and very unseasonable lectures in the University met with no favor on the occasion I have alluded to. "Henry, this won't do," said Peter Lehman; "the University

* Extracted from the Introductory Address at the opening of the School of Pharmacy, Oct., 1868.

† Old No. 320. ‡ Now No. 630.

have no right to be taking our boys away at noon to make them M. P.'s" Henry Troth was a man of ideas, a man of enterprize, and the indignation of his neighbor and customer at this assumption of the doctors to teach, examine, and perhaps in some degree suborn the independent guild of druggists and apothecaries, gave rise to the inquiry, "Why can't we have an Institution of our own, train our own apprentices and ourselves, supervise the qualifications of those seeking admission to our ranks?"

The suggestion seemed both timely and wise, and the two friends, full of their new idea, sallied forth to wake up their neighbors to its importance. The story goes that they called on some of the wholesale druggists first, as being generally men of some wealth and enterprize, not forgetting the retailers, however, as having perhaps most interest in the matter.

They were the right men for the work. Everybody they called on, but one or two prospective Masters of Pharmacy, took hold at once; so a meeting was called. The minutes of this meeting begin thus: "At a Meeting of the Druggists and Apothecaries of the City and Liberties of Philadelphia, held at Carpenter's Hall, February 23d, 1821, agreeable to notice, Stephen North was called to the chair and Peter Williamson was appointed Secretary."

Let us pause here to take note of the place of meeting. Carpenter's Hall is second only to Independence Hall in its historic interest, as connected with the stirring events by which the United Colonies of North America emerged from colonial dependence to a separate and equal place among the nations of the earth. This ancient building was first occupied by the Carpenter's Company, founded in 1724, by whom it was built in 1771. The Library Company of Philadelphia deposited their library in the second story in 1772, where it remained till 1790, when it was removed to the more commodious building in south Fifth street. The Apprentice's Library afterwards used the same room for seven years. This building was used as a banking house by the Bank of the United States from 1791 to 1797, and subsequently by the Pennsylvania Bank and United States Custom House. But the chief interest connected with Carpenter's Hall arises out of its having been occupied in 1774

by the Provincial Assembly, which recommended a general Congress of all the American Colonies, which Congress also met in this Hall, and in it inaugurated those measures which, after the perils of the Revolution, terminated so favorably for civil liberty in America and throughout the world. Here also assembled, in 1787, that convention of wise and far-seeing statesmen which framed the Constitution of the United States of America.

At the first meeting of the Druggists and Apothecaries of Philadelphia, the resolutions of the Board of Trustees of the University to which I have referred, and which had already appeared in Poulson's American Daily Advertiser, were read as follows:

*Resolved.* 1st, that the degree of Master of Pharmacy be and it is hereby instituted, to be conferred hereafter by the Trustees of this University on such persons exercising or intending to exercise the profession of apothecary as are and shall be duly qualified to receive the same.

2d. That the faculty of medicine be requested to report to this Board at the next meeting a proper form of diploma, and also a list of such apothecaries in the city and liberties of Philadelphia as are desirous and, in their opinion, deserving of obtaining the degree of Master of Pharmacy; and unless sufficient reason to the contrary shall appear the degree of Master of Pharmacy shall be conferred on such individuals respectively.

3d. That every person who shall have served a regular apprenticeship, of at least three years, with a respectable apothecary,—a Master of Pharmacy—and who shall exercise the profession of an apothecary in this State or elsewhere, may, on application to this Board, obtain the degree of Master of Pharmacy; *provided*, he shall produce a certificate of the faculty of medicine, signed by the Dean thereof, of his being qualified to receive the same, which certificate the faculty may grant on the attestation of the Professors of Chemistry, Materia Medica and Pharmacy who shall have examined the candidate, and also a certificate of his good moral character.

4th. That in future it shall be requisite, for obtaining such degree, that the candidate shall have attended at least two courses of lectures on Chemistry, Materia Medica and Pharmacy in this University.

Two sets of resolutions of like import were offered at this apothecaries meeting; those proposed by Henry Troth were adopted. They respectfully set forth that the method proposed by the Trustees of the University is not suited to correcting the alleged abuses in the drug and apothecary business, and direct the appointment of a Committee to report on the subject to a future meeting.

This Committee consisted of nine persons, as follows:

Samuel Jackson, Daniel B. Smith, Robert Milnor, Peter Williamson, Stephen North, Henry Troth, Samuel Biddle, Charles Allen, Frederick Brown.

In those days the Professor of Materia Medica in the University was Dr. John Redman Coxe, a man of very considerable learning and vigorous intellect, though singularly deficient in qualifications for a teacher. He was doubtless the leading spirit in this new movement of the Trustees, which, however distasteful to the druggists and apothecaries, had a certain ground of reasonableness, and, as the event proved, had the happy effect of calling the attention of those most directly interested to the needs and requirements of the trade.

There are few problems in history so difficult as to trace the real relations of men who have been actors in its important changes, to those changes themselves. Events which might seem to be the results of the exertions of one man or one party often have arisen from manifold causes, some of which are quite beyond human ken.

Dr. Coxe and his colleagues appear to have perceived what had been, long before, appreciated and acted upon in Europe—that the trade of the druggist and apothecary involving peculiar responsibilities, and being inseparably connected with chemical processes and with many delicate manipulations connected with vending and preparing potent agents for the treatment of disease, is one demanding scientific and practical education of a peculiar kind.

Previous to 1821, in this new country with its sparse population and vast territorial extent—its few small but growing cities scattered along the sea-board—the occasion had scarcely arisen to put in practice the obvious educational means fitted to these

requirements; but now the time had evidently come. Every intelligent druggist and apothecary who appreciated this could see also that instructions which might be considered suitable for the student preparing himself for the duties of the physician would be only partially fitted for one who was to assume the widely different responsibilities of the drug store and dispensary.

There was, moreover, among the public spirited men upon whom Henry Troth and Peter Lehman called to talk over this newly awakened want, a feeling that such associated action as they proposed would bring strength and mutual support to those engaged in the same laborious and responsible pursuit, and needing each other's aid and counsel. By such association abuses might be held in check or corrected, the common interests subserved and the whole trade elevated in the estimation of its members and of the public.

Postponing further remark in this direction, let us turn to the minute book, where, under date March 13th, 1821, we find the minutes of the second meeting. The aforesaid Committee now made a report, too long for the purposes of this address, setting forth that abuses had crept into the drug and apothecary business; instances had occurred of deteriorated drugs being introduced into the shops, and valuable remedies in daily use being adulterated and sold of inferior quality; such abuses, attributable in part "to want of proper pharmacological information on the part of some druggists and apothecaries who vend and of physicians who buy," had attracted the attention of those interested in the proper conduct of the trade, and had led some druggists and apothecaries, at the suggestion of one of the Faculty of Medicine in the University, to direct the attention of the Trustees to the subject, in consequence of which they have taken the action reported at the previous meeting. It was, however, apparent that the measures proposed by the University were not well adapted to correct existing irregularities, which could best be remedied by "the interposition and active agency of the druggists and apothecaries themselves."

To this end the formation of a College of Apothecaries was recommended, "the attention of which will be constantly directed to the qualities of articles brought into the drug market,

in which subjects relating to their business and its objects can be discussed, and information beneficial and instructive to the trade communicated." It was also proposed to erect a School of Pharmacy, in which lectures designed especially for the instruction of druggists and apothecaries should be delivered.

This Committee also produced a Constitution for such College, which was approved and signed by those present. Two weeks thereafter the first stated meeting was held and officers were elected. Under date of March 21st, 1822, we find a resolution adopted changing the name of the College to the Philadelphia College of Pharmacy, and at the next meeting an Act of Incorporation, duly authenticated by Joseph Lawrence, Speaker of the House of Representatives, William Marks, Jr., Speaker of the Senate, approved March 30th, 1822, by Joseph Heister, Governor of the commonwealth of Pennsylvania, was read and accepted by the newly constituted body politic.

The first President of the College was Charles Marshall, who was born in Philadelphia in 1744, and having had a good English and classical education entered into partnership with his father, Christopher Marshall, who was a druggist on the south side of Chestnut street above Second street. Charles Marshall soon became master of one of the leading stores in the city, and by scrupulous probity of character, combined with great urbanity of manners, secured the respect and affection of a large circle of friends and customers. After being many years in business and acquiring an ample competence, he resigned its cares to his son, though, unfortunately, still retaining his connection with the firm, which, through imprudence, became involved in bankruptcy, after its senior member was far beyond the period of life at which he could himself repair his fortunes.

In 1804, his daughter, Elizabeth Marshall, a lady of singular good sense and business ability, took the shattered business in hand and built it up with great success, supporting the family and regaining for them a position of independence. The old store, at 56 Chestnut street, afterwards passed into the hands of Ellis & Morris, who were the immediate predecessors of Charles Ellis & Co. In this establishment some of our older

members were brought up, who now delight to recall their recollections of Charles Marshall—"his tall and slender form, clear complexion, blue eyes, graced with a benignant expression of countenance, heightened in its effect toward the close of life by the snowy whiteness of his hair, which in ample volume descended nearly to his shoulders. His costume was uniformly plain and equally uniform in color, being the drab then in vogue with the Society of Friends, of which he was a consistent and life-long member."

This graphic description by one who shared his society has been placed on record by the College; on a previous occasion, it is again introduced as the best substitute we have for such a portrait of our first President as we all would desire to see gracing the walls of our New Hall.*

This venerable man, in a communication addressed to the College, dated 12 mo. 30, 1823, resigned his office of President, urging his advanced age and defective hearing as reasons for desiring to be relieved of its cares, but offering his best wishes for the prosperity and success of the institution.

At the following annual meeting, the choice fell upon William Lehman, formerly First Vice-President, as his successor. As I find no biographical notice of this early officer of the College upon its minutes, I think this a favorable opportunity to place upon record some account of him and of his cousin Peter K. Lehman, already introduced in this essay. These gentlemen were both descended from Godfryd Lehman, who came to this country from Saxony and settled in Germantown in 1731.

William Lehman was born in Philadelphia 14th of September, 1779. His grandfather, Christian Lehman, is spoken of as an accomplished linguist, astronomer and mathematician, a friend and correspondent of David Rittenhouse. William Lehman was educated in the University of Pennsylvania, where, after going through the literary course, he applied himself to the study of medicine and received the degree of Doctor of Medicine. He did not, however, practice that profession, but entered into the drug business, in which his father George Leh-

* See Memoir of Charles Marshall by Dillwyn Parrish, American Journal of Pharmacy, Vol. xxxvii, page 241.

man had been previously engaged on Second street between Arch and Race streets.*

The father of William Lehman died when he was quite young, leaving him considerable property, which was increased by his own success in business. He commenced about the year 1802, at No. 97 south 2d street, from whence he removed in about four or five years to No. 76 S. 2d street, (old numbers) below Chestnut street. Here the business was conducted with partners, under the peculiar title William Lehman, William Smith & Son. After eight or ten years the firm became Lehman & Smith, and about 1819 was dissolved, William Lehman remaining alone till about 1822, when he took into partnership Algernon S. Roberts, a name held in kind remembrance in our College for his bequest of funds to maintain our library and cabinet.

William Lehman was a studious and industrious man, a Latin, French and German scholar, and visited Europe several times. A warm advocate for the internal improvements of Pennsylvania, he was elected to the State Legislature in 1814, and re-elected for 15 years, having always in view the prosecution of these great works which he lived to see commenced but not completed. It was in the capacity of a legislator that he was enabled to serve the infant College of Apothecaries. He obtained the charter, and it is said took the liberty, on his own responsibility, of altering the title, from the College of Apothecaries to the College of Pharmacy, a more euphonious and more appropriate name, thus compelled our unassuming "apothecaries" to get together and sanction the change. Wm. Lehman was taken ill at Harrisburg and died there on the 29th of March, 1829, in the 50th year of his age.

He was a bachelor, and left a legacy of $10,000 (a more considerable sum in those days than now,) to the Philadelphia Athenæum for building a hall, which was "nursed" with care

* The name of Lehman has been much connected with drugs in our city. Dr. John Lehman was in full practice in 1785, residing at No. 16 Key's Alley (New street) and about the same time Joseph Lehman was in business as an apothecary, at No. 73 N. 3d st. In 1824 Wm. E. Lehman was a druggist at 77 Lombard street. Dr. George F. Lehman was Physician to the Lazaretto.

until more than doubled, and in 1845 invested with other funds in their present elegant and substantial building on south Sixth street.

Peter K. Lehman, as I have said, was at the date of this narrative located on Market street below 10th street. Not so prominent in public affairs as his cousin, he was a useful member and trustee of the College, often appointed on its committees. He was born in Germantown, June 16th, 1787, was brought up in the store on south Second street, of which I have just given the history, and after an honorable career retired from business and ended his days Nov. 17, 1846, in the house still occupied by his daughter and son-in-law, Hymen Lipman, No. 136 N. 10th st., nearly opposite our new hall.

It is perhaps fitting that I should say a word here of Stephen North, Chairman of the first meeting, and Second Vice-President of the organization. He is represented by those who remember him as a worthy and even superior wholesale druggist, doing business on Second street, a few doors south of Christ Church.*

He afterwards removed to the N. E. corner of 6th and Market streets, but did not live many years after his removal. Under date of 9th month, 1826, the minutes of the College contain a notice of his death, with a resolution expressing the deep regret of his fellow members at his loss, and bearing testimony to the value of his services in founding the College, and his faithfulness to its interests until removed by death from the station of honor and usefulness which he held among its members.

Daniel B. Smith next succeeded to the Presidency. He was one of the original members who was instrumental in imparting a scientific character to the College; the business men who were active in its affairs were numerous, the men of science few. At this period he was in active business at the N. E. corner of Sixth and Arch street, a stand which he established, afterwards associating with him William Hodgson, Jr., then fresh from the store of John Bell, Oxford street, London, where he was associated as an apprentice with the since eminent Jacob Bell, Robert Alsop, and Prof. Theophilus Redwood, all lights in the London

*No. 14, N. Second street, says the directory of 1824.

Pharmaceutical world. The firm of Smith & Hodgson were the direct predecessors of Bullock & Crenshaw.

Motives of delicacy preclude my saying much in this discourse of those who are still living among us, honored representatives of that band of pioneers who laid broad and deep the foundations of our College. Peter Williamson, the first Secretary, still a participant in our proceedings and a warm friend of our organization, Charles Ellis, for 14 years Secretary, now our respected President, and George D. Wetherill, are, I believe, with Daniel B. Smith, the only remaining members who signed the constitution at the first organization of the College of Apothecaries.

The present sketch would, however, be very incomplete without a notice of Henry Troth, already spoken of in connection with the first steps taken toward the organization of the druggists and apothecaries of the city. He was born in Talbot County, Md., and after such education as his circumstances afforded, was placed in the drug store of Jeremiah Morris, on the north side of Market street below 8th street. Near the close of the war of 1812 he embarked in business, and by industry and economy reached success. He was a leading spirit in the College for more than 20 years; for 13 years Vice-president, at a time when the President was seldom in attendance; he presided at the meetings with dignity and impartiality. He was seldom absent from his post, and at his death, in the summer of 1842, strong testimony was placed on the records of the College to his high moral worth, combined with kindness and courtesy of manner and many estimable traits of character.*

It may not be uninteresting, as illustrative of the progress of the times, to note his agency in the introduction of gas for illumination, into our city. He was for 13 years a member of the Common Council, (long before consolidation) and part of the time its President. The project of lighting the city with gas met with many objections; among others equally absurd, that the water would be contaminated by the vicinity of the iron water pipes to those through which the gas would be conducted under

* See also Memoir, Am. Journ. Ph., Vol. xviii, p. 90.

the streets. Henry Troth urged the improvement strongly, but it was only successful when, contrary to his judgment, a company was chartered for the purpose, who, after erecting the works and laying the pipes, sold out to the city at an advance of 25 per cent.

Henry Troth was one of the first in Philadelphia to burn anthracite coal, in a grate which was in his parlor over the store. About the year 1819 his grate was erected, but it was taken down and rebuilt several times before the intractable "stone coal" would burn satisfactorily. Many incredulous ones who called to see the experiment went away discouraged, because they said they could not supply fresh air as he had done by a hole through the hearth. How strongly this appears in contrast with the now fast returning fashion of open grate coal fires in rooms used as common sitting or living rooms, in city and country.

Samuel F. Troth, the younger brother and partner of Henry, who I shall have occasion to mention again in the course of my narrative, though not an original member of the College, being a year too young in 1821 to be enrolled as such, has given his attention to its affairs for 46 years with a constancy and regularity unequalled by any of his colleagues, and it is due to his own retiring character that he is not now, as formerly, a recipient of its honors, as he is of its thanks and grateful acknowledgements for services rendered.

The first years of the College were marked by great activity, in which many of the members participated. Committees of inspection were appointed to examine drugs introduced into the market, and to expose adulterations and sophistications. Latin labels were printed, carefully adapted to the officinal standard of nomenclature. Formulas were published for the old English remedies called "patent medicines," then very extensively sold, with a view to greater uniformity in their composition and properties; and the absurdly worded wrappers in which these were enveloped, giving false or exaggerated accounts of their virtues, were measurably superceded by more sensible and truthful "directions," published by authority of the College for the supply of the trade. Meanwhile a library was being formed, a

cabinet of specimens collected, and the various improvements in chemistry and pharmacy suggested from time to time were investigated and reported upon by the members.

---

## THE PARIS EXPOSITION OF 1867.

By the Editor.

(Continued from page 13.)

The English Section.—One of the most remarkable groups in the whole Exposition (though not in class 44) was that of Messrs. Johnson Matthey & Co., of Hatton Garden, London, which, from its connection in many ways with chemical manufacturing, we will notice here. The display consisted of platinum apparatus of various kinds, from immense stills capable of concentrating eight tons of oil of vitriol per diem, to the smallest crucibles, tubes, foil and wire; specimens of rare metals, metallic salts and a few minerals, the entire collection valued at $100,000. The largest still was valued at $12,500 in gold, the smaller $8,200. Each still was furnished with a decanting and cooling syphon, by which its contents, when properly condensed, could be at once drawn off into carboys. The metal used in this apparatus is of great purity, being melted by the process of Deville, (really that of Dr. Hare, by the oxhydrogen blow-pipe). The chief merit of these stills consisted in the avoidance of gold solder joints, which, from variation in expansibility or for electrical reasons, are more disposed to give way than other parts. Each boiler is a single piece of metal, made by hammering and fusing the joints with the blow-pipe by the autogenic method, just as plumbers join leaden apparatus by fusing the edges together, so as to have a continuous platinum surface throughout, an advantage over solder-joints, easily appreciated by manufacturing chemists. A single ingot of fused platinum valued at $5500, used in making the smaller still boiler, was shown. A platinum alembic, used for refining gold and silver salts, suitable for mint refineries and for chemists, was exhibited, worth $1500. These platinum vessels, though expensive at first, effect a great economy in the long run, by avoiding loss from breakage of glass and porcelain. Platinum tubes of all sizes, with platinum joints, crucibles, spatulas, foil and wire; but the most attractive object to the chemist was the remarkable display of the rare metals, among which were rhodium, iridium, osmium, ruthenium, magnesium, thallium, chromium, titanium and manganum. Supplementary to these was a collection of metals in cylinders of the same diameter and weight, but the length of each varied with its specific gravity, each cylinder weighing a kilogram, (over two pounds av.), showing on what a magnificent scale these metallurgists got up their display. The length of each cylinder was of course in ratio to its specific gravity, the lighter metals being long and the heavier short. They were contained in glass tubular vessels and

consisted of gold, silver, platinum, iridium, rhodium, palladium, lead, bismuth, copper, cadmium, cobalt, nickel, iron, antimony, zinc, magnesium, aluminium, thallium, sodium, potassium and mercury.

The sodium amalgam of Mr. Crookes, now so advantageously used in extracting gold from its gangue, and the discovery of which is disputed by a gentleman of New York, was shown. In contemplating this noble collection we were forcibly impressed with the wonderful progress made in the working of platinum since the days when the world depended on the then secret process of Wollaston. Among a few fine specimens of silver and gold salts shown by this house, was a sample of pure hydrate of soda made by the combustion of sodium, which these gentlemen aver is cheaper than when made of equal purity by the ordinary processes.

Another interesting collection was that of Howard & Sons, London, which embraced more than 150 samples of cinchona barks of all grades, including a series, in tall glass bottles, of barks from the Cinchona plantations, of India, with the results of their analysis, each bark being accompanied by its alkaloid. Mr. John Eliot Howard, one of the firm and author of a work on Quinology, and widely known as a promoter of all that relates to the Cinchona culture, has made annual reports to the government on the alkaloidal value of the India bark. Owing to the bad arrangement of many specimens in this collection as to position and distance from the observer, many were disappointed in learning its true interest. Besides their bark products, which included quinia, quinidia, cinchonia, cinchonidia and aricina, with many of their salts, such as the double gold and platinum salts, this firm exhibited tartaric and citric acid in fine crystals and purity. Benzoic acid from benzoin, Rochelle salt, bromine and iodine salts, a sample of ammoniacal salts of volcanic origin from Italy, and a few opium products. The peculiar character and great representative value of this collection obtained for it a gold medal.

We were much interested in the case of T. & H. Smith, Pharmaceutists, of Edinburg. Being one of the central range of cases, its contents were seen to better advantage. The item first in interest was the new alkaloid cryptopia, of which they exhibited a fine crystallization in minute acicular prisms studding a dish, the product of a vast quantity of opium, residues in which it exists in very small proportion, (see vol. 39, page 421 of this Journal). This firm have a habit of bringing out chemical novelties on the occasion of international exhibitions In 1851 aloin was their novelty; in 1865, at Dublin, thebolactic acid was exhibited, and in 1867, cryptopia. Thebolactic acid in a free state, as now presented (1867) is a light brownish-colored liquid, probably not chemically pure. Very creditable specimens of muriate of papaverina, meconin, codeia and nitrate of furfurin an (alkaloid discovered by Prof. Fownes, a derivative of furfurole, obtained from bran by the action of sulphuric acid, originally obtained by Mr. Morson) and of caffein, can-

tharidin and essential oil of coffee were also noted. This firm have the reputation of doing things well, and their collection accords with that view.

The case of Morson & Son embraces several opium products, physostigmin, some yellow podophyllum resin, (probably containing berberina) the brown commercial resin and samples of the pancreatized fat of Dr. Dobell, and of saccharized wheat phosphates, the latter a preparation prepared from wheat, containing the non-amylaceous portions more particularly. This case also contained a small specimen labelled methysticin, from Piper methysticum, of the Pacific Islands, claimed to have been discovered by Mr. Morson. In the *Journal de Pharmacie*, for Jan., 1860, M. Gobley, of Paris, claims the discovery of the same principle, (see page 133, vol. xxxii, of Amer. Jour. Pharm.). Whether Mr. Morson has priority we do not know.

The case of Wm McFarlane, of Edinburg, was well worth examining, containing chiefly opium products. The specimens of crystallized codeia and its acetate were particularly fine, the acetate of morphia very white, two other salts of codeia, papaverina, nareeia, narcotina and its derivative cotarnia, with other derivative products of narcotina by Dr. Matthiesson, (since noticed by Mr. Brough, in the proceedings of the Conference at Norwich).

The carbolic acid industry was chiefly represented by Manchester firms, F. C. Calvert & Co., C. Lowe & Co., and Lewis Demuth & Co. This wonderful substance, which every year seems to develope into wider and wider utility, is at present one of the most important of chemical products. Until quite recently pure carbolic acid was hardly known, and largely through the influence of Mr. F. C. Calvert the pure acid has become almost as common as spermaceti. The practical problem thus solved, so far as it applies to the coal tar product, has involved a long period of trials and failures, with a gradual approach to success since 1848. The pure carbolic acid in long distinct crystals was exhibited by Calvert & Co., quite free from cresylic acid. They also showed carbazotic (picric) acid, derived from carbolic acid by the action of nitric acid, now much used in silk dyeing, and an impure form of the same acid called *aurine paste*.

Messrs. Lowe & Co. exhibited a mass of crystallized carbolic, weighing near two hundred pounds, with the centre hollow and studded with crystals, just as spermaceti is sometimes seen, and so pure that it was not discolored or liquified. Picramic acid was also shown. M. Runge, when he discovered carbolic acid in 1834, little thought it would some day become so important to humanity, and only after numerous and oft repeated experiments has its history been worked out and determined.

Lewis Demuth & Co., of the Springfield Chemical Works, exhibited naphthalin, benzole, toluole, carbolic, cresylic and xylic acids, cumol, cymol and xylol.

The alkali manufacture, for which England and Scotland are so justly celebrated, was not so well represented as it deserved to be. Those who took part were Messrs. Allhusen & Co., the Walker Alkali Co., of New Castle-on-Tyne, Chance & Sons, of Birmingham, well known in this country for the good quality of their bicarbonate of soda; Muspratt & Co., of Liverpool, the Jarrow Company of South Shields, and W. Gossage & Son, Widnas, near Warrington, Soap Manufacturers. The latter house has adopted a process analogous to that of R. A. Tilghman's patent, by which they produce silicate of soda and other alkali products. The general feature of this process is to cause the mixed vapors of chloride of sodium and water to traverse an immense column 50 feet high and 8 feet in diameter internally, filled with flints and sand balls previously heated intensely by several gas furnaces constructed on Siéman's principle, at the base of the column, which is strongly built and lined with the best fire brick. The reaction results in the elimination of chlorine with the hydrogen of the water as hydrochloric acid, which passes off, and may be collected whilst the sodium taking its oxygen becoming soda seizes upon the silica of the flints, and as fused silicate of soda flows downward and is collected below. From this compound by the help of carbonic acid or lime the various soda products are made, and silica or silicate of lime, as the case may be, obtained as a valuable bye product. The practical points of difference between this method and Tilghman's, is in presenting the chloride of sodium in the state of vapor mixed with its decomposing agent steam, instead of incorporating it with alumina, and in the use of the silica as flint, which being attacked only on the surface, the removal of the resulting silicate in a liquid fused state is favored by its own gravity. Whether this and analogous processes will replace that of Leblanc in the great alkali works of Europe, remains to be seen. It was our good fortune, on calling at the St. Rollex Works, near Glasgow, in August, 1867, to be admitted, and to be conducted through the works by a young man connected with the establishment, for whose polite attention in explaining the various leading processes then in operation, we have always felt grateful. The great magnitude of the operations here conducted is the first most impressive feature that strikes the visitor, and in keeping with this the vast chimney stack, until recently the highest in the world, elevates its smoke evolving summit 460 feet above its base. (Within a few years past a yet higher chimney has risen on the north side of Glasgow). The kinds of manufacturing performed at these works are those which arise out of the alkali production which is the great central industry; for this the sulphur and pyrites of Italy and Spain and the alkaline nitrates of India and South America are used in generating thousands of tons of oil of vitroil, which in its turn is made to act on prodigious quantities of common salt, forming the crude sulphate of soda needed in an annual product of 40,000,000 lbs. of alkali. But in making this sulphate of soda immeasurable volumes of muriatic

acid gas are evolved, which if let loose in the atmosphere would blast the vegetation for miles around. To avoid this, the gas is fixed by passing it up a tall column of charcoal contained in stone towers, which is kept constantly dripping with water descending from above, and is received below as liquid muriatic acid, nearly of commercial strength. This acid would soon be as great an inconvenience to the fish as the gas is to vegetation, were it not utilized; hence arose the chlorinated lime manufacture—the muriatic acid affording an eligible source of chlorine when treated with oxide of manganese, which gas is then conducted into the extensive brick chambers in which the dry hydrated lime is placed on hurdles until the earth becomes saturated, becoming hypochlorite of lime and chloride of calcium. The atmosphere of the building in which these chambers were contained was so charged with chlorine and muriatic vapors as to be nearly insupportable to us, compelling a hasty retreat and nearly causing a spasm of the glottis, yet the operatives, engaged in various duties, did not appear to be inconvenienced, so kindly have our constitutions been moulded to our circumstances. The cost of the manganese in such immense quantities is great, hence has arisen a process patented by this firm whereby it is regenerated, which is conducted in an immense revolving cylinder. The still liquor, consisting of chloride of manganese and muriatic acid, is first neutralized with lime, then an equivalent of lime added, which soon precipitates the protoxide of manganese and becomes chloride of calcium. On the subsidence of the oxide the chloride of calcium liquid is drawn off and the bioxide of manganese regenerated by passing air through the apparatus, when it is ready for use, and much more active than the original native oxide, yielding twice as much chlorine with muriatic acid. Thus it is that the price of these important products is kept at a minimum by the wonderful economy now introduced into the soda process by using the bye products and recovering the manganese. We believe in some establishments, if not in this, the sulphide of lime in the alkali wastes after lixiviation is utilized by recovering the sulphur to be re-used in making sulphuric acid, leaving only the unavoidable waste of sulphur and manganese to be provided for besides the coal, lime and salt, which are very cheap.

Another very important auxiliary manufacture is that of soap, the alkali for which is used whilst yet liquid, thus saving much labor. Within the same extensive works they produce, by the aid of the cooper and carpenter, the vast quantities of casks and boxes needed to send their products into commerce.

But to return to the Exposition; druggists and sundry men were represented by the old and extensive house of Burgoyne, Burbidge & Squire, of Coleman Street, London, who presented a large display of pharmaceuticals and chemicals, generally of good quality. They claim to be manufacturers of chemical preparations and of essential and fixed oils, and articles representing these lines were exhibited. A very fine

mass of crystals of piperin was particularly prominent, and must have required great care in transportation. Capsules of various kinds and other strictly pharmaceutical articles were included, all arranged with great neatness and effect.

Davy Yates and Routledge, London, exhibited mercurials and other chemicals and various samples of drugs and pharmaceutical preparations.

The British Seaweed Co., of Glasgow, operating under the patent of E. C. Stanford, exhibited numerous specimens of their products. This patent claims to obtain nearly double the amount of iodine salts from seaweed that the old kelp process of open combustion yields. It consists in gathering and compressing the seaweed in solid cakes, which are then dried, packed into cylinders and carbonized, as in making pyroligneous acid from wood, thus securing the volatile products, tar and acetic acid, and after lixiviating the charcoal to remove the saline matter it (the charcoal) is found to possess great value for its decolorizing power. The saline matter is then obtained by evaporation, and the mother liquor containing the iodine salts is treated in the usual way for iodine.

Huskisson & Son, of London, had an interesting collection of chemical products of their manufacture, remarkable for their variety and the excellence of their crystallization. The iodine crystals were like bits of polished steel, one or two inches long. The iodides and bromides were, to say the least, very beautiful. Judging from their collection a very favorable estimate might have been drawn of the character of this firm.

Hopkins & Williams, of New Cavendish Street, London, exhibited fine specimens of glacial phosphoric acid, which looked like masses of fractured rock crystal, colorless and pure. Among the salts exhibited by this firm were double salts parallel with Rochelle salt, alum and tartar emetic, in which oxide of thallium replaced the potash in these salts. It would be interesting to know what effect this substitution had on their medicinal qualities. It was also in this case that Mr. Crookes, the first discoverer of thallium, deposited an ingot of that metal, and a sample of the crystallized thallium protected from the atmosphere by glass, the air being probably displaced by hydrogen gas. Thallium is one of the early results of spectral analysis, now so productive of wonderful probabilities in connection with astronomy.

H. B. Condy, of London, exhibited the permanganate solution known as Condy's disinfectant, so largely used in the hospitals, and specimens of other permanganates. It is said that a bottle of solution of permanganic acid in this collection in the early period of the exhibition exploded by its decomposition by sun light and fractured the glass case containing it.

Not the least pretentious collection was that of "Peter Squire, F.L.S., sole dispensing chemist to her Majesty the Queen," &c., &c. The specimens purported to represent the new British Pharmacopœia, (not published when the exhibition commenced). No particular merit was claimed for them except their novelty. Mr. Squire's course in bringing

them out prematurely, which he was enabled to do from his connection with the previous committee of revision has, been criticised. Among the curious specimens of printing brought away from the Exposition, not the least remarkable is one now lying before us, issued by Mr. Squire, in three languages, informing the visitors to class 44 what he had done as an advocate of pharmacopœial unity in bringing about the British Pharmacopœia, and in extending its usefulness.

Savory & Moore, of Liverpool, exhibited pancreatic emulsions after Dr. Dobell's suggestion, gelatin discs, medicated with atropia, etc., and various other pharmaceutical preparations.

Allen & Hanbury's, of Plough Court, Lond., exhibited extract of meat from Australia and cod liver oil of their own manufacture. This house have been makers of this oil for more than twenty years, and extract it by a process similar to that suggested by M. Donovan, of Dublin. The fresh cod is brought to London, as abundantly witnessed in Billingsgate market. The extract of meat, for which they are agents, is made by Liebig's process in Australia, by Robert Tooth, of Sydney. The extract of meat sold by this firm is a soft extract, having a peculiar odor usual in such extracts retaining moisture, and analogous in character to that made by B. J. Crew.

Rufus Usher, of Bodicott, near Banbury, exhibited a remarkably beautiful specimen of English Rhubarb. The success of this culture renders it a matter of regret that the more medicinal species cannot be obtained.

William Ransom, of Hitchin, had a good display of extracts, herbs and volatile oils. Among the latter we noticed the oils of cloves, savin, cubebs, copaiba, wormwood, pimenta, chamomile, caraway and peppermint. He also exhibited scammony root from Smyrna, and elaterium of his own make. The pleasure and profit of our visit to the Exposition was materially lessened by not having access to the specimens, and except when the eye could decide, relative merit could not be satisfactorily determined by the visitor.

Essential oils were also exhibited by Condie Brothers & Co., of London, W. Holland, of Market Deeping, and L. Schlesinger, of London. Price's Candle Company, Battersea, London, exhibited various samples of their beautiful products, among which the most interesting was their pure glycerin, the pioneer of the pure distilled glycerin now produced so abundantly and cheaply in this country. Whilst it is very evident that the chemical interest of England and Scotland were by no means fully represented, no one could pass through this section without being pleased with the variety and solid character of the articles exhibited. These are but a portion of the exhibitors in the British Section of class 44, but they are the principal, and are all that our space will permit us to offer at present, intending to notice some of the German and other continental sections in our next.

## ON GLYCERATE OF TAR.

By J. B. Moore.

This is an elegant and potent preparation of tar, and presents to the physician a very palatable and desirable form in which to administer that remedy. Being free from sugar it is for many purposes preferable to the syrup of tar. In all medicinal syrups in which the active ingredients bear so small a proportion to the saccharine matter which they contain, as is the case in such syrups as tolu, tar, &c., the sugar is frequently an objectionable element. These syrups being generally employed, owing to their excitant character in the treatment of chronic, bronchial and pulmonary affections, and to obtain their full remedial effects, it is often necessary that their use should be persevered in for a considerable length of time.

The prolonged use of such syrups in delicate, enfeebled and dyspeptic persons, is very liable to offend the stomach and disturb the digestive functions, producing a feeling of oppression and uneasiness, accompanied by loss of appetite, &c., which not unfrequently imperatively forbid their continued use. Instances of this kind, I have no doubt, have occurred in the practice of almost every medical practitioner whose experience has been at all extensive. Therefore, I think that the glycerate of tar will prove a valuable remedy, and hope that it may merit the approval of the medical profession.

Glycerin seems to be a good solvent of the medicinal properties of tar, and possessing demulcent, alterative and nutrient properties, serves as a valuable adjunct to the latter therapeutically.

I will now present the formula which I have adopted, after repeated trials, as the most desirable for the manufacture of this preparation :

| | | |
|---|---|---|
| ℞. Picis Liquidæ (strained), | ℥j. | troy. |
| Magnesiæ Carb. (rubbed to powder on a sieve), | ℥iij. | " |
| Alcoholis, | f℥ij. | |
| Glycerina, | f℥iv. | |
| Aquæ, quantum sufficit. | | |

Mix the alcohol and glycerin with ten fluidounces of water.

Rub the tar in a mortar, first with the carb. magnesia gradually added, until a smooth pulverulent mixture is obtained; then gradually add, in small portions at a time, with thorough trituration continued for fifteen or twenty minutes, six fluidounces of the mixture of alcohol, glycerin and water and strain, with strong expression; return the residue to the mortar, and repeat the trituration as before, with five fluidounces more of the same liquid, and express; again treat the dregs in same manner with the remainder of the menstruum, and after expression reduce the residue by trituration to a uniform condition, and finally pack firmly in a glass funnel prepared for percolation, and pour upon it the expressed liquors, previously mixed, and when the mixture has all passed from the surface, continue the percolation with water until one pint of liquid has been obtained.

It will be observed that the manipulation employed above is similar to that adopted by the writer in the preparation of the syrup of tar, the formula for which will be found in the January number of this Journal. The percolation is well calculated to exhaust the tar of all that is medicinally valuable.

When first prepared, the "Glycerate" is of a beautiful rich reddish-brown color. After a short time it looses, in a measure, its transparency in consequence of a separation of *inert* pitchy matter. But its pristine beauty may be easily restored by filtration, which is accomplished in a few minutes, as it passes the filter very rapidly. This deposit of resinous matter continues for a considerable lapse of time, but does not diminish or impair in the slightest degree the medicinal virtues of the preparation, but simply temporarily mars its beauty.

It possesses in a high degree all the sensible properties of tar. In this they are more strongly marked than in any preparation of tar, excepting the tincture, I have seen.

In conjunction with the fluid extract of wild-cherry bark, acetate, or syr. squills, syrups of sanguinaria, lactucarium, &c., in varied proportions to suit the views of the prescriber, it will form elegant and palatable combinations, which will be found peculiarily adapted to the treatment of chronic coughs, and the various diseases of the pulmonary organs.

Each fluidounce of the glycerate, if the process has been care-

fully managed, will represent about thirty grains of tar, the dose of which is from a dessert to a tablespoonful.

The glycerate may be made, and I think almost equally well, without alcohol, by replacing that liquid with glycerin. When made in this way, the preparation deposits less resinous matter, as glycerin takes up less of that substance, yet the odor and taste of the tar is nearly as strong as when alcohol is employed in its manufacture.

*Philadelphia*, February, 1869.

---

## ON THE FLUID EXTRACT OF LIQUORICE ROOT AS AN EXCIPIENT FOR QUINIA.

By Joseph Harrop.

In the November number of the "Journal" (1868), I noticed a communication on syrup of chocolate as a vehicle for quinine, by the use of which it appears the taste of quinine is entirely avoided. There is at least one objection to the use of the preparation referred to, the time and pains necessary to prepare it. This might not be an objection to some apothecaries, but to the majority I think it would be. The writer also mentions its liability to ferment, which would be another objection.

After reading the article referred to, I remembered having on several occasions added as an adjuvant powdered extract of liquorice, as per prescription, to quinine mixtures, but which as far as I could judge, did not much conceal the bitter taste of the medicine. About the same time I had occasion to take some quinine, and on looking around for something to overcome its bitterness, I tried the fluid-extract of liquorice-root, which I thought would at least be nicer than the powdered extract, when I found it to completely conceal the taste.

The inference then may be that the glycyrrhizin, said to be the source of the sweet taste in the root, and described as a transparent yellow gelatinous substance, overcome the bitterness of the quinine, and that the principle is, in part, destroyed or impaired by the process of manufacture in producing the commercial extract.

Might not the fluid-extract or a concentrated tincture be used

to more completely cover the taste of aloes in the tincture, of which Dr. Wood says "liquorice answers the purpose imperfectly?" also in other preparations having an unpleasant taste?

*Leavenworth, Kansas*, Jan. 21st, 1869.

---

## ON AROMATIC SUGAR.

By Wm. L. Turner.

It occurred to me some time ago that the aromatic powder of the Pharmacopœia was not used to an extent proportionate to its value as an aromatic combination, and that this was mainly to be attributed to the following facts in reference to the preparation.

It is to a very limited extent adapted to the various forms in which medicines are prescribed.

Its well-known tendency to deterioration and the consequent uncertainty of obtaining a reliable article, has probably restricted its use, even in cases where it is adapted.

Impressed with the idea that these objections might to some extent be avoided, I was induced to prepare an aromatic sugar, representing in aromatic combination and strength the officinal powder, or sufficiently so for practical purposes, which from its solubility and the consequent readiness with which it can be incorporated with emulsions, mucilaginous mixtures, &c., is possessed of a more general adaptation, and is I think a more permanent preparation.

It has been prescribed to some extent in my immediate neighborhood, and the opinion of those who have tried it is, that it is decidedly preferable to the aromatic powder.

I prepared it as follows:

| | |
|---|---|
| Take of aromatic powder, (freshly prepared) | 8 oz. |
| Sugar, | 8 oz. |
| Stronger alcohol, q. s. | |

Exhaust the powder by percolation and pour the resulting percolate over the sugar, evaporate spontaneously or at a low heat (with occasional trituration toward the end of the process) until dry.

*Phila., Feb.*, 1869.

## ON GLYCERIN AS AN EXCIPIENT FOR PILLS.

By Thomas E. Jenkins, M.D.

I have been using glycerin (Price's or Bower's) for a long time as an excipient for pills, and with great success and satisfaction, but alone it is not just the thing for quinine; it makes a mass with four times its weight of sulphate of quinia, which with care gives a *small* handsome and soluble pill; it is hygroscopic however, and requires lycopodium and a tight box or bottle. The pill is as small or smaller than that made with aromatic sulphuric, or tartaric acid, and is *more manageable.* It is "tender," however, and will not suit for sugar coating. This glycerin quinia pill business is original with me, so far as I know. I have made a number of experiments with other bodies and find *as a rule* that it makes a good pill mass (hygroscopicity excepted) with nearly all saline bodies which are to some extent soluble in it. It makes a good pill with sulphate of iron; iodide of potassium; bromide of potassium; muriate of ammonia; sulphate of iron and rhubarb; with tannin, kino, etc.; hypophosphite of quinia; hypophosphate of lime; sulphite of magnesia; citrate of iron and quinia; and many others not now remembered, including many of the pill mixtures of the United States Pharmacopœia.

With iodine and iron by hydrogen in excess it gives, with a little trituration, a *greenish* mass capable of being rolled into pills, with no other addition than glycerin, which may be enclosed in a tight vial with a little finely powdered iron.

---

## IS VALERIAN AN ANTIDOTE FOR STRYCHNIA?

By J. Dabney Palmer, M.D.

This question suggested itself to my mind a few days since by the apparent inertness of strychnia when given with valerian. I had occasion to poison four cats. To two of them I gave strychnia on pieces of beef; both died. To the other two I gave it on small tufts of valerian, and without the least effect. The quantity given to each cat was about two grains.

[The writer does not say in what manner the poisoned valerian was administered. If dry, may not the powdered strychnia have fallen off? The experiment is worth repetition to prove or disprove the correctness of Dr. Palmer's inference.—Editor.]

## CULTURE OF OPIUM IN THE UNITED STATES.

By the Editor.

There has arisen in several parts of our country a desire to try the culture of the poppy with a view to its narcotic product—opium; want of success in some instances has been due to bad seed. A letter from Mr. W. P. Creecy, of Vicksburg, Miss., says:—"In response to your inquiry 'concerning my success in in the experimental culture of the poppy,' I have to state that I totally failed. I procured the best imported seed that the Department of Agriculture, at Washington, afforded. I divided the seed into three parts. One lot was planted in the rich alluvial soil of the river bottoms; this was superintended by one of the best practical planters of this section, but none came up. Lot No. 2 was planted in the higher ground of the hills, with the same result. Lot 3 was carefully planted in garden soil, richly manured, with the same result. I am thus forced to believe that the seed were *worthless*, as the common garden poppy grows luxuriantly here. Could I get some really good seed I would feel sure of success in producing an excellent article of opium, the climate being in my judgment admirably adapted to the culture of the plant."

In the Ledger of February 12th is the following: "It is reported that the cultivation of the poppy plant will be introduced into Louisiana. A French gentleman at Natchitoches, it is stated, has announced his intention of planting several acres of poppies the coming spring, for the purpose of making opium, under the impression that an acre of poppies will yield fifty pounds of opium worth (now) 15 to 20 dollars a pound, and that one man can cultivate three acres."

Now it is very desirable that persons engaging in this business should not be deceived. That poppies can be cultivated almost any where in the United States there can be no doubt; and it may be true that one man can cultivate three acres; but the point of the matter is in the gathering of the juice by wounding the poppy heads. This has to be carefully done with an instrument that will not penetrate the capsule, else the juice is lost; further, it has to remain on the capsule to inspissate or thicken,

and is liable to be exposed to rain, by which it is lost. The period when the capsules are in the proper condition for wounding is limited; hence the tedious labor of gathering the juice must be accomplished promptly, which requires many hands, and corresponding expense. Large quantities of growing poppies were seen by the writer in France, Bavaria, several parts of Germany and Belgium, where they are raised for the oil obtained by expressing their seeds. The Germans especially are noted for perseverance, and for low wages, and it has repeatedly occurred to us, why do these people not make opium, if it is a paying business, when they could do so and have the seeds for expression besides? It has probably been ascertained that the time required for gathering the juice rendered the cost too great at the old prices; possibly the present price may induce a trial. In the Turkish department of the Paris Exhibition there were a great many samples of poppy heads with part of the stalk attached, showing the wounds caused by the opium gatherers, which were apparently healed. These wounds, in all cases noticed, were around the capsule and not longitudinal. The capsules appeared to be of full size.

---

## ON SOAP LINIMENT.

By J. B. Moore.

There are but few preparations in the Pharmacopœia more in demand in the daily routine of business, or that the pharmacist is more frequently called upon to make, than this Liniment. It is therefore important that the process for its manufacture should be as simple and as easy of execution as possible. But unfortunately the officinal formula, offers a very tedious and troublesome process, requiring several hours for its completion. It directs to "mix the alcohol and water, digest the soap with the mixture, by means of a water-bath, until it is dissolved, &c." To effect the solution of the soap in this way requires that the digestion be continued several hours. This is the most objectionable feature in the process.

Now, I propose in this paper to offer a formula which I have been accustomed to use for the manufacture of this liniment for

a number of years with much satisfaction, having never, in a single instance, been disappointed in producing a perfectly acceptable preparation. It is simply a modification of the "officinal," in which I substitute alcohol fort. for alcohol 85 per cent. U. S. P., which, with a somewhat different manipulation, entirely obviates the prolonged digestion entailed upon the process by the officinal formula, and consequently affords a more facile, expeditious and economical method of operating, and at the same time preserves *intact* the integrity of the finished product, the result being in *strict conformity* to the requirements of the Pharmacopœia. The following is the formula which I offer, and which has stood the test of about fifteen year's experience:

℞. Saponis, (in shavings or coarse powder), ℥iv Troy.
Camphoræ . . . . . ℥ij. "
Ol. Rosmarini . . . . . f ℥ss.
Aquæ Bullientis . . . . . f ℥viss.
Alcohol Fortioris . . . . . f ℥xxixss.

Pour the boiling water upon the soap, in a pan or other suitable vessel; stir and beat the mixture well with a spoon for about five minutes, or until a soft, comparatively smooth and pultaceous mass is obtained. To this gradually add the alcohol, with constant stirring, until the soap is dissolved, then filter into a bottle containing the camphor and oil of rosemary.

If, after the alcohol has all been added and the mixture well stirred, there should remain any lumps or undissolved portions of soap, these should be separated by passing the mixture through a sieve or other strainer, rubbed to a smooth paste, dissolved in a portion of the strained liquid, and then the whole mixed together before filtering.

The soap generally employed by pharmacists for the fabrication of this liniment is the broken pieces, cuttings, and waste portions which accumulate in the course of business and which is usually quite dry; when in this condition it can be readily reduced to coarse powder by contusion and trituration, which will greatly facilitate its solution.

In hasty preparation, in order to render the camphor more quickly soluble, it may be first reduced by trituration with a portion of the solution of soap.

In the foregoing formula, instead of using two pints of 85 per ct. alcohol and four fluid-ounces of water, as directed in the officinal formula, I take twenty-nine and a half fluid-ounces of alcohol of 92 per ct. and six and a half fluid-ounces of water. These proportions afford, in the finished product, the proper alcoholic strength required by the U. S. P., with almost mathematical exactness.

The quantity of water rendered available by this plan of operating is sufficient to disintegrate and soften the soap, and render it almost immediately soluble in the alcohol.

I have generally been in the habit of using 95 per ct. alcohol, as it admits of the use of about one fluid-ounce more water than the alcohol fort., but as it is a strength of alcohol not recognized as an officinal standard, I have in the above formula directed the latter, although I presume, in practice, the former will be almost universally employed.

By the above method of operating, if the soap is in proper condition, a gallon of soap liniment can be made and filtered ready to dispense in about an hour. From five to fifteen minutes is all that is necessary for the solution of the soap, if it is properly manipulated, the balance of the time being consumed in the filtration.

This process the most conscientious pharmacist may adopt and feel that he is complying with the *spirit* if not the strict letter of the *standard authority*. A single trial will convince any one of the advantage it possesses over the officinal process.

*Philadelphia, February*, 1860.

---

## LABARRAQUE'S WINE OF QUINIUM.

By the Editor.

A correspondent desires to be informed, through the columns of this Journal, of an easy method of preparing *Labarraque's Vin de Quinium.*

"Quinium" is a name given by M. Labarraque to the crude quinine or alcoholic extract of cinchona by lime. According to M. Dorvault (Officine p. 520, edit. 1858), it is prepared as follows: Take such a mixture of cinchona bark as shall contain

about 2 per cent. of quinia and one of cinchonia, bruise it finely and add to it half its weight of hydrated lime in powder. Treat the mixture with boiling alcohol till exhausted, and distill off the alcohol from the resulting tincture by aid of a water or steam bath to dryness. The residue is *quinium*, which contains 33 per cent. of its weight in cinchona alkaloids. It is therefore very much richer in alkaloids than the best extracts of cinchona, and the preparations made from it are of course easily made more active, and as it is graduated in strength, more uniform.

*Wine of quinium* is prepared by dissolving 4½ parts of quinium in 1000 parts of white wine, such as sherry and maderia; this is about equal to about 35 grains to the pint. M. Dorvault says the dose is from three to six fluidounces in 24 hours as an antiperiodic in fevers, and from an ounce and a half to three ounces per day as a tonic.

We do not know the precise solubility of quinium, but may hazard the opinion that a stronger solution with a less dose would be preferable when the stimulating effects of the alcohol are not needed.

---

## GLEANINGS FROM AMERICAN JOURNALS.

By The Editor.

*Bite of the Centipede.*—Dr. Rounsaville, of Bluffton, Arkansas, (in Nashville Jour. Med. and Surg., Jan. 1868), describes a case where a man, 24 years old, was bitten by a centipede on the arm, the insect having been caught between his arm and a rail he was lifting. The animal had sunk every foot into the skin, causing a double row of black dotted impressions nine lines apart and five inches in length; the arm was greatly swollen, having an erysipelatous blush over half its extent, with deep, dull pain and nausea. The part was cupped and scarified and tincture of chloride of iron applied, with 16 grs. doses of bromide of potassium every half hour until 7 doses were taken. The patient recovered without serious inconvenience about the 6th day after. The author believes that each foot of the animal is charged with poison, but he does not appear to have based this opinion on any microscopic examination of its anatomy.

*Sorghum molasses as a remedy in Diarrhœa* is suggested by the same writer.

*Cannabis Indica in Strychnia poisoning* was administered by Dr. S. A. McWilliams, of Chicago, in teaspoonful doses of the tincture at intervals of 5, 10 and 15 minutes, in a case where five grains of strychnia had been taken with suicidal intent, more than three hours before he saw the patient. The latter was lying on his back, with frequent spasms, frothing at the mouth, pupils dilated, pulse 130. Towards the end camphor was given, and recovery occurred in 48 hours. (Humb. Med. Archiv. Jan. 1869).

*Poisoning by Opium sold in mistake for Rhubarb.*—Dr. P. J. Farnsworth describes (Phila. Med. and Surg. Reporter, Jan. 30), a case in which a young man stepped into a drug store in Clinton, Iowa, and asked for a dose of *Turkey Rhubarb*. The clerk waiting on him remarked, on giving the powder, that there was enough for two doses. On returning home he took two-thirds of the powder on some jelly with some warm drink and retired at 9 o'clock, P. M., complained of restlessness and headache, and did not sleep for 6 hours, and then went to sleep and soon after had a convulsion and then passed into a stertorous condition, which first caused alarm. Dr. F. was called at 4 A. M., and thinking it an apoplectic attack prescribed bleeding. The remains of the powder being shown was recognized as opium, when an attempt was made to arouse the patient, whose pupils were contracted, and considering it too late for emetics, resorted to fluid extract of belladonna, no atropia being available for hypodermic application. Galvanism was also used, but all were of no avail, the patient succumbing at 8 o'clock A. M., with pupils widely dilated. The paper says nothing of the circumstances of the case as regards the druggist, as to whether he had labelled it or not. The physician attributed the mistake to "criminal heedlessness on the part of the druggist." This it undoubtedly was, as the druggist's remark that it was sufficient for *two* doses proved his intent to give rhubarb rather than opium, as the patient took about 30 grains. The alleged counter-poisonous effect of atropia in opium poisoning deserves a careful investigation to determine in what conditions it is appropriate and safe, else the antidote may usurp the poisonous *role* and prove the greater evil.

*Inhalation of Nitrous Oxide with Oxygen.*—Dr. H. M. Lilly, in a communication to the Philadelphia *Med. and Surg. Reporter*, recommends inelastic gas bags, rather than elastic ones, for holding this gas, as less wasteful and more agreeable to the patient. He also endorses the recommendation of Prof. Andrews in the *Chicago Med. Examiner*, for Nov., to mix the gas with oxygen before using it in the proportion of half, third, or fifth, and finds the anæsthetic effects are produced without the discoloration of the skin or lips incident to the use of the pure gas. He thinks, however, that a less proportion of oxygen will suffice and proposes one-sixth. In view of this association of gases it would be well that chemists should study the influence of time and moisture on such a mixture, as to whether there is a tendency to oxidation that will result in the presence of even a minimum of a higher oxide of nitrogen.

*Carbolic Acid as a Poison.* Prof Joseph G. Pinkham, M. D., in a long communication to the *Phila. Med. and Surg. Reporter*, sums up the toxicological points of carbolic acid, as follows: It is a dangerous poison; it is rapidly absorbed into the system; it is rapidly eliminated, chiefly by the kidneys; its local action is caustic, irritant and sedative; its general action is that of a powerful neurotic, causing trembling, convulsions, giddiness, headache, insensibility, a cold clammy surface, a feeble, intermittent, rapid pulse, great prostration, and death. Recovery in non-fatal cases is speedy and complete when there has been no serious local lesion. The post-mortem appearances are neither constant nor distinctive; there is no known chemical or other antidote of value. In treatment the chief reliance must be placed upon measures of evacuation and stimulation. Aside from the actual detection of the poison, the preservation of the body is the most important medico-legal evidence of poisoning with carbolic acid.

The extensive medical and hygienic use of carbolic acid points to the necessity of seeking an antidote, and its importance appeals strongly to the chemist.

*Medical Botany in Canada.* The Canadian Pharmaceutical Association has issued a circular, dated Sept. 15, 1868, signed by its Secretary, H. J. Rose, offering prizes "for collections of indigenous medical substances of vegetable origin." Three

prizes are offered, $15, $10 and $5 each to be accompanied by a botanical work and a certificate. The competition is limited to members of the society previous to 1869 who have been but three years in the drug trade. The substances, viz: roots, barks, seeds, fruits, plants, etc., to be each wrapped in paper after careful preparation for sale, and be marked with the common and scientific names, the date and locality of collection, and a private mark, which shall also be on the outside of the letter sent with the specimens, containing the address of competitor and his employer's certificate, and sent to the Secretary at Toronto prior to Sept. 1st, 1869. Three judges shall determine the relative merit of the competitors and award the prizes if they receive such award.

This method of competition is calculated to be of great benefit to the students, as in order to name their specimens they must learn the plants yielding them, and by connecting the two in the mind they become more thoroughly acquainted with their history and character. This method is well worthy of adoption by all our colleges of pharmacy.

*Sulphate of Atropia in Toothache.*—Dr. Samuel R. Percy, of New York, (see New York Med. Journal) has employed atropia in the case of a young woman suffering from toothache, by putting about $\frac{1}{40}$th of a grain on a slightly moistened pellet of cotton and passing it into the cavity. It always gave instant relief. He applied it many times before she could be persuaded to go to the dentist. It did not cause dilatation of the pupil.

Dr. Percy very properly cautions against the use of this remedy oftener than once in 24 hours, and he might very properly have added that it should be applied only by the physician or dentist. He considers atropia cumulative in its action, and hence the impropriety of its repeated application in a quantity capable of injuriously affecting the patient if it enter the circulation.

*Liability of Druggists.*—The Medical and Surgical Reporter states that an action was recently brought against Robert Kennedy, an apothecary of Brooklyn, New York, by Thomas Webster, adm'r of Matilda Webster, dec'd, for damages resulting

from the death of plaintiff's wife, as alleged by malpractice on the part of the defendant. Sometime in October, 1867, Mrs. Webster sent her daughter to Mr. Kennedy for "something to make her sleep," as she had lost much rest by an attack of dumb ague. Mr. Kennedy, it is alleged, sent her back with two grains of morphia in one paper, and remarked that if that did not have the desired effect nothing would. The daughter administered the dose and the mother died the next day.

A suit had been brought on two other occasions, the jury in both cases disagreeing. In this instance the defendant did not appear. Medical testimony showed that, although the ordinary dose of morphia was from one-sixth to one-third of a grain, much larger doses were given when the patient was accustomed to it. The damages were laid at $5000.

In the absence of testimony from the defendant it would not be just to comment on this case further than to educe it as another evidence of the impropriety and risk of counter practice by apothecaries in cases where the physician only should decide, and especially in the absence of the sick.

*New uses of Carrageen.*—In our last volume we gave a long article, by Hubert Bates, on the carrageen collection and trade in New England, (see page 417, vol. 39, 1868). According to the *American Exchange and Review*, the present high prices of glue and isinglass have caused carrageen to be used as a substitute and added greatly to the demand for it. It is also said to be used in lieu of eggs for clearing coffee. Its most important use is as sizing in the paper, cotton cloth, felt and straw hat industries. The poorer qualities are bought for size. The second quality of moss is sold to the brewers for clarifying their beer when sent out new. Carrageen in this country takes the place of isinglass, which it substitutes without any preparation.—*Druggists' Circular, Feb.* 1869.

*Tincture of Pyrethrum Roseum.*—In the last number of this Journal we published a notice of the value of this preparation for destroying insects, especially those infecting the person. Prof. Maisch informs us that in two instances where it has been used its application has been followed by a vesicular eruption analogous to that caused by Rhus toxicodendron.

## ON THE DETECTION OF PHOSPHATE OF LIME IN SUBNITRATE OF BISMUTH.

By Mr. G. G. Hornsby.

I was not in time for the September issue of the Journal, or I should have sent some remarks on the "Note on a New Adulteration of Subnitrate of Bismuth," by Dr. Redwood. I am glad, however, to find that Messrs. Howard and Sons have pointed out (what I had previously proved by careful experiment) that this test, suggested by Mr. Roussin and supplemented by Dr. Redwood, for the detection of phosphate of lime, was fallacious. This point established, I have somewhat to say upon the modification suggested by Messrs. Howard and Son.

The process they suggest possesses some advantages over that of Mr. Roussin, but cannot, *per se*, be relied upon, as the following results will show. I have operated upon several samples as follows:—

1st. One part of the salt of bismuth, dissolved in nitric acid moderately dilute, two parts citric acid, dissolved in a little water; then add an excess of ammonia, and *boil*. This solution remains perfectly clear until it is boiled, but when it reaches the boiling-point it lets fall a bulky basic precipitate, which remains insoluble until the solution has been boiled for some minutes longer; it then parts with its ammonia, assumes a slightly acid condition, when the precipitate redissolves and remains perfectly bright.

2d. Proceeded as above, adding two grains of phosphate of lime to the bismuth salt previous to solution. The result was similar to the above, with this exception: the precipitate redissolved, but left the solution somewhat opalescent, and, after the lapse of twelve or fourteen hours, gave an abundant, insoluble basic precipitate. Not satisfied with the result of these experiments, I adopted the same method again with two more samples, this time omitting the boiling altogether.

1st. As No. 1 before named, not boiled.

2d. As No. 2; two grains phosphate of lime added; not boiled. The first solution remained perfectly clear, and has done so for many days. The second, after the lapse of five or

ten minutes, gave a bulky, insoluble, basic precipitate. I have also dissolved "metallic bismuth," passing it through the same process; and, whether boiled or otherwise, the results have been the same in each instance as detailed above.

I have carefully examined the precipitates formed, and produced a considerable bead of metallic bismuth before the blowpipe, whether phosphate of lime has been added or not. The natural conclusion to be arrived at is this, that whilst the modification suggested by Messrs. Howard and Sons may serve as a kind of negative test in the cold, it cannot be relied upon as an absolute test, and especially not when the solution is boiled; although it may serve to show the presence of a phosphate, it is open to the same objection as that suggested by Mr. Roussin.

I have found in all my experiments with this most eccentric of metals that it will not bear boiling in the presence of free ammonia; even the Pharmacopœia liquor, and others which have come under my notice, give this same basic change when boiled with this agent in excess.

There is a question growing out of this well worthy the careful examination of experimenters, viz., does the salt of bismuth undergo a change when boiled in the presence of phosphate of lime and nitric and citric acids, producing an insoluble phosphate of bismuth? Phosphate of bismuth we know is not soluble in acetic acid, but freely so in dilute hydrochloric acid. These precipitates produced by the above-enumerated process correspond to this; but I have had no time to pursue them further, and should be glad to see the subject investigated by more able hands.

This subject is an important one, from the fact that manufacturers and wholesale houses may be exposed to unjust imputations, through hasty experimenters calling the precipitate produced by Mr. Roussin's and Messrs. Howard's test phosphate of lime, and estimating the percentage as such, when none exists in the salt. And the more especially is it important that great care should be exercised, as it appears that this adulteration is one of foreign origin, and the possession of drugs thus adulterated renders the possessor liable to a heavy penalty.

It would not, therefore, be policy for any one to rely upon a

simple test which is in itself fallacious; and it would be well if we could have some more ready method of detecting this adulteration than the tedious, yet more reliable, one which already exists.

Our daily high-pressure hard work precludes the majority of us from bestowing that attention to these necessary details of examination of the materials we use, which, from the great competition in the markets, renders it necessary that we watch to see if our preparations are carefully prepared, and really what they profess to be.

27, *Upper Rock Gardens, Brighton, Sept. 15th,* 1868.

—*Lond. Pharm. Journ., Dec.,* 1868.

---

## KREATININE, AN INDEX OF PUTREFACTION.

By M. Commaille.

An index of the commencement of putrefaction in many animal substances may possibly be found by the presence of kreatinine. In a note on the presence of this body in putrified whey, M. Commaille, among other interesting things, mentions the above fact. Some filtered whey was placed in a flask, simply covered with paper, and set aside for about a year. The whey fermented and then putrified; numerous microzymas made their appearance, and the liquid became colored a deep brown. Afterwards, the animal life gave place to a thick mass of spores; the fœtid odor was succeeded by a musty odor only. The liquid thus altered was filtered, evaporated on the water-bath, and treated with alcohol of 95°, which became strongly colored. This alcoholic solution was evaporated and the residue treated with alcohol of 90°, which removed a portion; the substances obtained from the evaporation of the alcohol of 90° were divided by alcohol of 95°. That portion undissolved treated with water gave abundant crystals containing much mineral matter. Calcined, these crystals leave a white and saline ash; treated, after solution, with nitrate of silver they yield a voluminous precipitate, which cedes to boiling water a small quantity of long needles, which are perhaps nitrate of kreatinine. The portion removed by alcohol of 95° furnishes, upon evaporation of the liquid,

numerous crystals, which, under the microscope, appear as rectangular plates. These crystals are soluble in water and alcohol, insoluble in ether; they react as follows:—with nitrate of silver, a white magma, soon resolved into silky needles of double nitrate of silver and kreatinine; with syrupy chloride of zinc, small masses, which, examined under the microscope, appear as fine needles in radiating groups; these crystals are double chloride of zinc and kreatinine; with recently precipitated binoxide of mercury, at ebullition, metallic mercury. The kreatinine thus obtained is far from pure. Kreatinine ($C_8H_7N_3O_2$) occurs in the putrified whey from the dehydration of the kreatine ($C_8H_9N_3O_4\,2HO$) already present in the milk. Urine, which has been exposed to the air for some weeks, contains no longer kreatine, but only kreatinine. It would thus seem that the small quantity of kreatinine found in beef tea and recent urine indicates an alteration, inappreciable, one may add, by other means. Kreatine is, in fact, much more often found in fresh animal substances than kreatinine. The reason that kreatine has not been found in milk is probably the great amount of other materials present with it; and only when the lactine has been destroyed by fermentation and putrefaction, it becomes easy to detect in the whey the derivative kreatinine. The detection of a substance hitherto considered excrementitious in milk is worthy of remark. A further analogy between milk, blood, and meat, is also established.—*Paris Corr. Chem. News, London, Jan.* 1, 1869.

---

## DETECTING THE ADULTERATION OF OLIVE AND SWEET ALMOND OILS.

Lipowitz has recommended the use of hypochlorite of lime, bleaching powder, as a means of detecting the adulteration of olive and also of sweet almond oil with the oil of poppy seed (Mohnöl). When eight parts of either olive oil or oil of sweet almonds is rubbed up and shaken with one part of bleaching powder and left at rest, it will be seen that even after some four or five hours a layer of clean and limpid oil separates and floats at the top and surface of the mixture, which layer is, if the oils operated upon are pure, at least half the bulk of the original

mixture; if, however, poppy-seed oil is mixed with either of the two oils just mentioned, and the same experiment then repeated, the mixture gets the appearance of a liniment from which no oil separates. Sweet oil of almonds, adulterated with one-eighth part of poppy-seed oil, behaves as if it were almost pure poppy-seed oil. Büchner and Brande have found Lipowitz's statements correct as regards sweet oil of almonds, but not as regards oil of olives; but they add that the olive oil they operated upon was already old. The action of Lipowitz's reagent is explained by the fact of the rapid oxidation of all so-called drying oils which, on drying, yield solid products before entirely changing, by continuously absorbing oxygen into water and carbonic acid. Linseed oil, hemp-seed oil, poppy-seed oil, oil from walnuts, croton oil, castor oil, are all drying oils. The drying of drying oils is, in fact, a process of slow oxidation of these oils.—*Chem. News, Jan.* 1, 1869, *from N. Br. Arch.*

---

## CHEMICAL ACCURACY.

By Wm. Crookes, F.R.S.

We cannot see the tendency towards exactness and clearness better than by taking a chemist's view. Air was once the soul of the world, it was the life of man, it was a spirit including intellect, it was a ghost, it was capable of turning into water, which again became earth, and it was in itself nothing material, and had no weight or substance. Now it has fallen into the ranks of ordinary things, although not less wonderful. It has been divided into parts, although unseen. This very spirit of the world has been dissected, and chemists treat it without reverence, measuring it out in tubes or weighing it on balances. Now we can scarcely tell how various its composition. It has two principal parts, but a third was soon added, whilst a fourth, under the name of ozone, has been followed by the scent for many years—we may even say since those ancient days when the smell was observed after violent lightning. Now we have plants and animal diseases almost endless, and strange influences accompanying every wind. These, by degrees, the scientific inquirer is hunting down, and preparing for the world new mu-

seums in nature where we shall see, by the aid of magic eyes, forms of disease lurking around and capable of being successfully attacked instead of insidiously entering and finding no one to struggle against them. The air has been, and will long be a study worthy of the greatest and the most acute, but the progress made is a great triumph, and shows that scientific men in many departments are reasoning, on the whole, rightly and fairly, gaining a victory over the world.

We may say that all organic matter comes from the air, the trees, and the lower animals, and man himself; and when we have viewed this proof which chemistry has made we almost return to the original idea that the air is the life of the world, not by general and vague reasons but by careful analyses. Out of air we may form or see formed by natural means thousands of bodies, each varied in its structure as we can prove, although air itself is invisible; and out of it will come many thousands more —movements of unseen bodies, directed by unseen forces, and observed by unseen minds. It is to this that we have come by accuracy to a world that was as unknown as if it were in Saturn, whereas we are in its midst and the scales of our eyes only want removal to show us the irresistible intelligences at work.

The wide and hasty flights of thought are past in many departments. The workers must walk softly. Our trail is not the broad foot of the elephant on the mud, but the slightly displaced leaf of the forest. With patience the chemist watches the drops from his filter and walks up and down on guard; with patience he observes that one-thousandth of the weight has been lost and that he ought to have lost less; he begins again. We do not wonder at Professor Rose being excited when a courtier, walking about in his laboratory, touched with exquisite forefinger a transparent precipitate of alumina on a filter. Stateliness of manners was forgotten. The chemist seized the offending finger and never ceased to wash it with a jet of water till the earth was all returned to the funnel; nor could he venture to explain, since the jet was driven by his own mouth and swollen cheeks.

The idea of cleanliness in all its accuracy is known only to chemists. When preparing a substance for analysis is there any trouble we avoid if we can aid success? What! in a vile labora-

tory? Yes; no foul air must touch these bodies. Air, that which the most sensitive persons would consider sweet, would be poison. The slightest trace of carbonic acid or moisture, things found in all breezes, would make some analyses imperfect. We can well remember when in that stage of learning when sulphur and hydrogen are so much employed for metals we rushed forward to seek advice, but were driven back from the sanctum by the usually most urbane and pleasant friend. What could that mean? he was preparing a silver salt in order to obtain an important atomic weight. We are obliged to use not only pure air, but sometimes artificial atmospheres, and sometimes the entire absence of atmosphere. As to analysis generally, most chemists have seen in their own day the rise of the methods of Fresenius. It was no easy matter to learn from that of Rose. The information was great, but the system deficient. Now the details and system of Fresenius seem to form an embodiment of logic itself, and if any one learns them he must have learned to reason in such a way that he will gain a great superiority over his former self. Every step carelessly made shows itself in material mistakes; the student must reason closely to keep his solutions correct. He cannot go with mere enthusiasm and boasting long. His own results bring him the greatest reproaches, his experiments silently humble him, and he is laughed at by forces he cannot avenge.

We see the value of accurate work in Berzelius perhaps more than in any man. He built up inorganic chemistry, and if any man follows his work in organic departments he will learn to wonder at its accuracy. He worked as if the eyes of posterity were on all his movements, and he seemed to do his enormous labors by making few blunders. There is no chemist from whom the young can learn so much of the art of working long and honestly. We modify his structure, but it was said by one, himself a great man, "Berzelius is the greatest chemist that is, or that was, or that will be."

We remember sitting with an old philosopher, when he said, "Would you like to see the atoms of Epicurus, out of which the worlds were made—true star-dust?" Who would have said no? he brought a little bottle of meteoric dust—but we must not de-

scribe it; he will do it, or has done it. We thought of these atoms now visible to a microscope but still divided by the chemist in many portions, and long after the finest microscope can aid the finest eye the chemist goes on dividing, and with a certainty which is absolute.

It was our wish to show that science is gradually making its devotees the representatives of care and accuracy. We have scarcely space to carry out the plan fully, but chemists are accustomed to such a variety of occupations that they can readily finish this article for themselves. It is a fine quality that of uttering undeniable truth. Let us not lower that position but rather magnify our office. Let our words suit the facts with an accuracy equal to that with which the facts themselves can be ascertained, and in a world of wavering and changing let us show that there is a class of facts to be found upon which reliance can be placed so far that we may be certain they will never change. In common affairs a mistake may have but a short life, but in the study of nature an imperfect observation may cause infinite trouble to thousands. The increased study of science will promote exact observation and greater love of truth among men, and will produce a race that will either absorb the worthless residuum or drive it hence into the unknown and unseen.—*Ext. from Editorial of Chem. News, Jan.* 1, 1869.

---

## CRIMINAL POISONING BY ATROPIA.

A case is about to occupy the tribunals of Geneva which bids fair to be a *cause célèbre.* Mademoiselle J. stands charged with causing the death of several persons by means of the sulphate of atropia, which she obtained in the form of a collyrium by the pretext of consulting various practitioners for disease of her eyes. Her pupils were habitually dilated, and she wore green spectacles. She had visited various cantons offering her services as a nurse to doctors, or whoever had need of such a person, and carried about with her the names and addresses of some of the most influential persons in Switzerland. She was very assiduous in her attendance upon all those who were consigned to her care; and her conversation, knowledge, and long experience imposed

upon even the most experienced persons. At Geneva, however, after several of her patients dying, suspicion was aroused, and she was carefully watched, especially by Dr. Rapin, one of whose relations was among the number of her victims. At a boarding-house where she gained admission several persons died, and one morning the inmates were startled by finding an unknown hand had conveyed its warning by placarding at the door these ominous words: *Ceux qui entrent ici n'en sortent pas.* The public became alarmed, and suspicions were more and more pointed at J., who had become very dexterous in persuading her victims not to seek for medical advice. At last one of them, a young German governess, to whom she had given some atropia, was brought to the hospital, having all the symptoms of poisoning by atropia, great dilatation of the pupils being especially remarkable. She recovered, and stated that Mademoiselle J., while professing to instruct her in French, gave her from time to time some fluid to drink, saying it was *kirschenwasser.* Mademoiselle J. has been arrested and awaits her trial. Several phials containing atropia were found at her residence, and seven bodies have been exhumed and submitted to medico-legal investigation, with the result of the discovery of atropia and other poisons. (Since the above was written, the prisoner has confessed, and been condemned to penal servitude, notwithstanding the plea of insanity.)—*The Med. News and Library, Jan.* 1869, *from the Med. Times and Gaz., Dec.* 5, 1868.

---

## A CASE OF POISONING BY THE CYANIDE OF POTASSIUM.

By A. B. Arnold, M.D, of Baltimore, Md.

The symptoms of poisoning by the cyanide of potassium and prussic are said to be identical, but as these cases generally terminate very rapidly, little opportunity has been afforded to watch the course of the symptoms or to note the subjective sensations peculiar to the action of these poisonous agents. The following case, which happened in my own person, is therefore of some interest, since I well remember the manner I was affected when the poison first began to act, and also the agonizing struggle for life, which immediately preceded recovery. Various statements of the accident, which occurred some years ago,

found their way into the daily press, but a full and reliable account of the case I had, for certain reasons, withheld from publishing till now.

I was sent for in the evening by Mr. G. Eckert, of this city, to attend his child, about two years old, for whom I prescribed a mixture containing two scruples of chlorate of potash. Early the next morning I was hastily summoned to see the child again, whom I found already dead on my arrival at the house. The nurse informed me that the child, on the previous evening, could not be induced to swallow any of the medicine which I had prescribed, but that about half an hour ago the child took a teaspoonful of it, which almost instantly caused convulsions and soon after death. While I was examining the corpse, noticing the white froth at the mouth, the very pallid countenance, and coolness of the surface, the nurse suggested that the medicine might have killed the child, and that either myself or the apothecary had made a fatal mistake. At the same time she handed to me the phial containing nearly the whole of a two ounce mixture, which I repeatedly carried to my mouth, in order to determine by the taste of what it might be composed. I was still holding the phial in my hand when I began to feel a slight giddiness of the head and an inclination to yawn, to sigh, and to heave. Soon after I experienced some difficulty in using my lawer jaw in the act of speaking. No further doubt remained now in my mind that I had tasted some deadly poison. I hurried to a drug store at the corner of the next street, which happened to be the same one where the medicine had been procured. On my way thither, which took me but a few minutes, all the symptoms I have mentioned increased, and when I reached the apothecary's my gait seemed to me to be unsteady. I called for a strong emetic and sat down on a chair. Mr. Loffler, the druggist, handed to me in a teacup a solution of tartar emetic and ipecac., which I had some difficulty to introduce into my mouth, and I distinctly recollect that I neither felt the usual taste of the drugs nor had any sensation of the act of swallowing. Mrs. Loffler, who was present at the time, told me afterwards that I fell off the chair before I had finished drinking the emetic, that I turned blue in the face, and breathed slowly and heavily. It was about eight o'clock in the morning when I came

to the drug store, and at two o'clock of the same afternoon I gave the first signs of returning consciousness. The medical attendant who first saw me told me that he found me lying on the floor in a deep stupor; a reddish froth covered my mouth and nose; my face looked livid and bloated; the pulse was hardly perceptible; respiration was heavy and labored, and produced the blowing of bubbles at the mouth; urine and feces came away involuntarily. About two pints of blood were taken from my arm without any mitigation of the symptoms. I clearly recollect that, some time before I had fully recovered from the effects of the poison, I struggled desperately for breath, and that the horrible conviction of impending suffocation, though ignorant of its cause, did not leave me for a single moment. About the same time I recognized the presence of my wife and brother, but the violence of the asthmatic symptoms prevented me from speaking to them. This dreadful smothering sensation seemed to me to have continued for a great length of time, though I learned afterwards that this stage lasted hardly thirty minutes. I also remember the effects of the pungent smell of carbonate of ammonia, which was held frequently to my nose, and I shall never forget the sensation of imminent suffocation which it produced. The efforts I made to prevent a repetition of it must have been wild and furious, for I recollect that my arms and legs were held tight by some of the bystanders while the ammonia was again applied. As soon as I felt the first disposition to vomit my conciousness was perfectly restored, and I have the indelible recollection of the anxiety I felt, lest the act of vomiting would smother me to death. The first ineffectual attempts at emesis did in fact increase the asthma. To my greatest joy, or rather surprise, the copious evacuation of the contents of my stomach, consisting of an undigested breakfast, was instantly followed by a complete cessation of all the symptoms. The relief was prompt and permanent. It is hardly to be presumed that the emetic I had taken five hours before caused the vomiting, and, besides, authors state that recovery is usually preceded by emesis.

The circumstance which led to the discovery of the kind of poison I had taken, and which cost the life of the druggist, is somewhat curious. It appears that when Mr. Eckert heard that

I was lying at the point of death in Mr. Loffler's drug store, he came to see me, and brought the medicine with him which had proved fatal to his child. He accused Mr. Loffler of having poisoned the child, who in an excitable manner offered to swallow the contents of the phial, in order, as he said, to show that he made no mistake. Unfortunately he was permitted to drink nearly a tablespoonful of the mixture, and in a few minutes afterwards he fell down dead. The attending physicians examined now the prescription file of the previous day, and found one over my signature, which read: Potass. chlor. ℈j, syr. gum acac. aqua anis, *aa* ℥j.—M. S.—One teaspoonful every three hours. They next examined the contents of a glass jar which was labelled Potass. Chlorat., which was, however, empty, and the few grains of a dirty, whitish looking salt which they scraped from the bottom of the jar, bore no resemblance to the well-known crystals of the chlorate of potash. It was further discovered that another label was under the one which had P. C. written on it. This was brought to view ofter the top label had been detached by carefully wetting the paper, when the words Kali Cyanuret became distinctly legible. The whole mystery was subsequently fully explained by Mrs. Loffler, who stated that her husband had bought the drugs at second-hand from a German druggist, and was therefore not aware of the fact that the jar marked Potass. Chlor. had formerly contained the cyanide, some of which still stuck to the bottom of the jar; and that on the previous evening, when my prescription for chlorate of potassa came in, it required considerable scraping of the jar to make up the full amount of the drug.

It is impossible, under these circumstances, to determine the exact quantity of the cyanide which proved fatal to the child and druggist, but its deadly effect in both these cases was fearfully rapid. In my own case I must evidently have taken considerably more than the highest medicinal dose, which is stated to be the five-sixths of a grain. Mr. Nunnley, who has reported a case similar to my own, in one of the English medical journals, conjectured that the immediate effects of poisonous doses of the cyanide of potassium act on the notary functions. This opinion seems to me to be correct, for my consciousness remained intact for some time after I had felt the stiffness of my lower jaw and

difficulty in moving my lower limbs. It is, however, possible that the disturbance of the sensory functions may set in simultaneously with those of the motory, for the loss of taste of the emetic solution which I drank I experienced but a few minutes after I had swallowed the poison. The violent form of asthma which preceded recovery in my case, and which has been uniformly observed in similar cases, is another symptom which lends weighty support to the opinion that the motor element of the respiratory function is originally affected by the poisonous action of prussic acid and its compounds—and if this be true, it may suggest a solution of the much-vexed question of the pathology of asthma. The temporary paralysis of the motor nerves, whether at their centric origin in the medulla oblongata, or along their distribution to the respiratory apparatus, from any cause whatever, would be sufficient to give rise to all the symptoms characteristic of true asthma. There can hardly be a doubt that the feeling of constriction about the chest, or the gasping for air, which has been witnessed in cases like my own, is but an abatement of the paralytic effects of the poison on the nerve-centres, which supply the respiratory, and perhaps also the circulatory system, with adequate innervation.

[It may not be out of place to here call attention to the important observations of M. W. Preyer, noticed in our preceding number, p. 577, who asserts that the subcutaneous injection of sulphate of atropia, if made pretty quickly after the ingestion of prussic acid, is an *unfailing antidote*, provided a sufficient dose of the acid has not been taken to paralyze the heart.—Ed.] —*Amer. Journ. Med. Sci., Jan.*, 1869.

---

## FORMATION OF ELLAGIC ACID BY MEANS OF GALLIC ACID.

By M. J. Löwe.

By heating nearly to the boiling point for several hours in an aqueous solution of two equivalents of gallic acid and one of arsenic acid, a crystalline precipitate is deposited, which is none other than ellagic acid; the best way is to mix the two acids in the proportion indicated above, add water, evaporate to dryness, heat in an air bath to 120°, and extract with alcohol at 90°, which does not dissolve ellagic acid. The reaction is the following—

$$C_{28}H_{12}O_{20}+2O=C_{28}H_6O_{16}+6HO.$$

In commercial tannin there is always gallic acid, and consequently ellagic acid which proceeds from it. A cold extract of oak bark gives by degrees a yellow deposit of ellagic acid, and it is, indeed, this same acid which constitutes that gelatinous covering which is formed over tanned hides.—*Chemical News, Jan.* 22, 1869, *from Journ. de Chim. Prat.*

---

## THE TINNING OF SAUCEPANS.

In France, as in other parts of the Continent, the use of copper saucepans is very far more general than it is in England, and great care is generally taken to keep them in good order. In all well-conducted houses copper vessels are tinned frequently, and cooks are thoroughly impressed with the danger accruing from neglect in this respect. The police regulations require that nothing but pure tin should be used, but that metal is dear, while lead is cheap, and therefore a mixture of the two metals is too often made use of. The mixture works well, but when the lead forms a considerable part of it the vessels become decidedly dangerous. In consequence of information obtained and suspicions entertained, the Minister of War ordered an inquiry to be made into the subject by the directors of the military hospitals. The result of this inquiry has been read before the Academy of Medicine, and brings out the startling revelation that some manufacturers of copper utensils and tinners mix 25, and in some cases 50, per cent. of lead with the tin, and that, in addition to this, antimony, another dangerous metal, is added. From the facts thus brought to light, M. Gobley, a member of the Academy of Medicine, has drawn up the following list of recommendations :—1. That the metal used to line copper drinking vessels shall not contain more than 1 per cent. of lead. 2. That not more than 5 or 6 per cent. of lead be mixed with the tin used for saucepans or other cooking vessels, that amount offering no serious danger. 3. That every maker shall be required to mark his productions with a special stamp. 4. That the travelling tinmen shall be strictly watched.—*Chem. News, Dec.* 11, 1868, *from Journ. of the Society of Arts.*

## PARASITES OF INFECTIOUS DISEASES.

Prof. Hallier, of Jena, read a paper on this subject before the Annual Congress of German Naturalists and Physicians, which met in Dresden, in September last. He said that it was Böhm, who, thirty years ago, first discovered minute organized beings in the intestines of cholera patients. This important observation, however, remained unnoticed for a considerable time. The minute organisms observed by Böhm belonged to the species of Bacteria and Vibrio, which had been known as far back as the last century, but had only been accurately examined by Ehrenberg, and which were by some zoologists classed amongst the Infusoria, while others placed them with the Algæ and Fungi. Quite recently a number of observers had commenced to investigate their origin and their conditions of life, because the fact of their being found in fermenting and putrid substances, as well as in pathological liquids, had invested them with a considerable degree of interest. It had been too much the custom in former times, as soon as any such formations were observed, to make immediately a number of species and genera of them, without investigating at all the origin of these minute organisms. It had now been shown that they were nothing but lower grades of development of higher classes of fungi. In sixteen infectious diseases the presence of a peculiar and characteristic fungus had now been demonstrated—viz., in cholera, typhoid fever, typhus, measles, dysentery, and certain diseases of the domesticated animals. Whether the parasite was the actual cause of the pathological process could at present not be made out with any degree of certainty; but the fact that certain peculiar forms of parasites were invariably present in certain diseases was no doubt most significant. In the disease of the silkworm it had been irrefutably proved that, in spite of numerous conditions favoring the tendency to the development of the disease, the parasite itself was the sole and exclusive cause of it, and that not only the hereditary transmission, but also the epidemic character of the complaint, was entirely dependent upon the presence of the parasite.—*The Med. News and Library, Jan.* 1869, *from Med. Times and Gaz., Oct.* 31, 1868.

## OCCLUSION OF HYDROGEN BY METALS.

The master of the mint has applied this term to the absorption of gases by what he terms colloid metals.

A new method of charging the metals with hydrogen at low temperatures has lately been discovered by him.

When a plate of zinc is placed in diluted sulphuric acid hydrogen gas is freely evolved from the surface of the metal; but no hydrogen is occluded and retained. A negative result was, indeed, to be expected from the crystalline structure of zinc. But a thin plate of palladium in the same acid, and brought into contact with the zinc, soon becomes largely charged with the hydrogen, which is transferred to its surface. The charge taken up in an hour by a palladium plate amounted to 173 times its volume.

Although the hydrogen enters the palladium, and no doubt pervades the whole mass of the metal, it exhibits no disposition to leave that substance even in a vacuum at the temperature of its absorption. Occluded hydrogen is therefore no longer a gas, whatever may be thought of its physical condition. When palladium charged with hydrogen is left exposed to the atmosphere, the metal is apt to become suddenly hot, and to lose its gas entirely by spontaneous oxidation.

The condition of hydrogen, as occluded by a colloid metal, may be studied with most advantage in its union with palladium, where the proportion of gas held is considerable. The largest absorption of hydrogen observed was in the case of palladium thrown down upon a thin platinum wire by electric deposition. Such a specimen of metal occluded 982 times its volume of hydrogen, or by weight—

| | |
|---|---|
| Palladium, | 99.277 |
| Hydrogen, | .723 |
| | 100. |

or an approximation to the compound Pd H.

Professor Graham thinks that the passage of hydrogen through metals is always preceded by the condensation, or occlusion of the gas. The "solution affinity" of metals appears to be nearly confined to hydrogen and carbonic oxide; metals are not sensibly penetrated by other gases than these.—*The Med. News and Library, Jan.* 1869, *from Med. Press and Circular, Sept.* 2, 1868.

## ON THE MILKY JUICE OF LACTUCA ELONGATA, *MUHLENBERG.*

By John M. Maisch.

Lactuca elongata, Muhl., is now generally described as a variety of L. Canadensis, Lin., under which name all the different forms of Lactuca are comprised which are indigenous to Canada and the Northern and Middle States of the Union; but this species is likewise met with, though less frequently, in the Southern States. It is a coarse plant, growing in hedges and thickets, in somewhat damp situations, and in favorable places its annual stem often exceeds eight feet in height. The inflorescence usually forms long and, at first, rather dense panicles, but it is also met with in rather loose, compound racemes. The foliage is extremely variable, and in the same situation specimens may frequently be seen with the leaves varying from runcinate pinnatifid to entire, and with the base rounded to sagittate and even amplexicaul. Its flowers begin to appear in July and the fruit to ripen in the month of August; but flowers and fruits may usually be found in the same plant till late in September and even in October.

Like other species of the same genus, this plant is lactescent in all its parts above ground, and the greatest number of the vessels carrying the milky juice are found immediately beneath the thin bark, so that a very slight incision will at once produce a milk-white exudation. Our species therefore resembles in these respects the two species from which, in Europe, lactucarium is produced, namely, Lactuca virosa and sativa, Lin., and it was reasonable to suppose that they all might, to a certain extent, resemble each other in their medical properties. In regard to this point we find the following passage in the U. S. Dispensatory, 12th ed., page 503:

"It was supposed that our native *L. elongata*, or *wild lettuce*, might have similar virtues; and Dr. Bigelow was informed by physicians who had employed it, that it acts as an anodyne, and promotes the secretion from the skin and the kidneys. But according to M. Aubergier, who experimented with different species of Lactuca, in order to ascertain from which of them lac-

tucarium might be most advantageously obtained, the milky juice of this plant is of a flat and sweetish taste, without bitterness, contains much mannite, but no bitter principle, and is destitute of narcotic properties. (Ann de Thérap., 1843, p. 18.) The probability is that it is nearly or quite inert. Therefore, though formerly holding a place in our national Pharmacopœia, it has been discarded."

The subject has interested me for some years, since I had often observed, when out on botanical excursions, that the leaves of the different varieties of our Lactuca possess a strongly and lastingly bitter taste.

After the last annual meeting, during the fine days of September, 1867, I commenced the collection of the milky juice from vigorous plants growing in a damp thicket. Most of the plants had attained the height of six to eight feet, with the leaves on the upper half of the stem green and juicy, and bearing flowers and ripe fruits. Oblique incisions were made on various places of the stem. The exuding juice, in a few minutes, lost its fluidity and became gelatinous; though still soft, it possessed sufficient firmness and tenacity to be scraped off with the blade of a knife. To increase the quantity, the leaves were pulled off at the stem, and thus a portion of the bark was usually removed. The wound almost instantly became covered with the juice, which, however, likewise soon ceased to flow in consequence of gelatinizing; when this soft mass was now removed the juice did not again commence to flow, or to the utmost only a minute quantity was obtained in addition.

In consequence of this rapid congelation, I was unable to unite the different tears so as to form a uniform mass similar to the European lactucarium. On drying, at ordinary temperature, these tears shrunk considerably and very irregularly, without, however, coalescing into a uniform mass. The recent milky juice collected, as stated before, in a gelatinous condition yielded 22·13, 24 and 32·23 per cent. dry residue.

The lactucarium thus obtained is in irregular pieces, deeply corrugate and with the ridges rather acute; it has a grey brownish color, persistently bitter taste and a heavy, nauseous, narcotic odor, milder than and distinct from, but at the same

time reminding of the odor of commercial lactucarium. It is rather tenacious and cannot be rubbed into powder like German and English lactucarium. In preparing a syrup from it, it was for this reason exhausted, instead of by displacement, by repeated digestion in dilute alcohol; otherwise the directions of the Pharmacopœia were followed. The syrup (℥i to Oi) possessed the bitter taste of the officinal syrup, but its odor was somewhat different and its color rather darker.

240 grains of this lactucarium, exhausted by dilute alcohol, left a residue weighing 151 grains; the soluble matter therefore amounted to 89 grains or 37·5 per cent. This result is intermediate between the amount of "extract" obtained by Messrs. Parrish and Bakes from German and English lactucarium; their sample of the former yielding with dilute alcohol 36, and of the latter 44 per cent. of extract. I am inclined to doubt the practicability of depending upon such a test for judging of the quality of lactucarium, which, like opium, does not represent the sap proper of the plant, but the contents of certain vessels, frequently at certain periods only of the life of the plants. The amount of soluble matter in pure opium is mostly within certain limits, but it has no relation whatever to the amount of morphia or other constituents; and this is undoubtedly true also of lactucarium, the relative proportion of the constituents varying from different causes, as appears to be indicated by the researches of Ludwig, Kromayer and others.

The syrup prepared from my American lactucarium did not possess the same stability during our hot season, as officinal syrup prepared from German lactucarium. The former had a tendency to ferment, so that it was found necessary to add a small amount of Hoffmann's anodyne; a sample, however, which was allowed to ferment, possessed afterwards the original bitterness unimpaired.

A portion of the syrup from American lactucarium was placed in the hands of Dr. J. M. Da Costa, of this city, who was kind enough to try it in his private practice, and informed me that it had been used with decided benefit by several ladies requiring sedatives; on account of the crowded condition of the Pennsylvania Hospital, it was not used in that institution.

Dr. August Muller, resident physician of the German Hospital of Philadelphia, kindly consented to try this preparation on some patients with whom opiates did not agree, but who required sedatives. After satisfying himself of the sedative properties of the American lactucarium in question, Dr. Muller compared it with the German lactucarium, using both in the form of syrup, prepared by myself by the officinal process, merely substituting, for the former, percolation by digestion with dilute alcohol, for reasons previously stated. His conclusion was, that there is no difference whatever in the medicinal activity between the two.

These experiments, made by two physicians entirely unbiassed by the investigation of the other, it seems to me, prove conclusively that the milky juice of Lactuca elongata possesses the same virtues in the same degree as that of L. virosa.

During the present summer I have tried repeatedly to obtain this American lactucarium of the same appearance as the European article, but being otherwise considerably occupied, I was unable to arrive at a satisfactory result. I feel convinced, however, that the collection of lactucarium from our wild growing lettuce cannot be profitably carried on, and that to compete with Europe in price, cultivation on an extensive scale would have to be resorted to.

But it is not improbable that from the recent or dry herb a pharmaceutical preparation may be obtained, which, though not lactucarium, might answer all practical purposes. I have commenced to turn my attention in this direction, but in consequence of limited time, have only been able to make one experiment, with the following result:

A number of vigorous plants were collected; while fresh they were cut up, bruised and subjected to pressure in a one-screw press; the residue was moistened with water and again expressed; the liquid was heated to boiling and strained. On tasting it now for the first time it was found to have a sweetish taste, entirely destitute of bitterness. If Aubergier examined the juice of L. elongata, prepared in the same way, this experiment agrees entirely with his result; but the *press cake possessed the persistent bitterness of lactucarium.*

It is probable that the milky juice of this species, on assuming so readily a tenacious gelatinous form, envelopes the bitter principles and prevents them from being removed with the sap by pressure. This theory would indicate a process for a reliable pharmaceutical preparation, on the merits of which, however, only actual experiments can decide.

*Philadelphia, September*, 1868.

—*Proc. Amer. Pharm. Assoc.* 1868.

---

## ON THE SO-CALLED OIL OF STILLINGIA.

By W. Saunders, London, Ont.

Being called on lately to prepare some of this remedy I referred to the American Dispensatory, edited by Dr. King, for information on the subject. After reading the details of the process I met with remarks to the following purport: That the recent root yielded a larger proportion of oil than the dried, but that the article made from the dried root contained the "real active principle" but little impaired. In the next paragraph the author says that "*the dried root is inert or nearly so*," hence its powder is of no utility. Not knowing how to reconcile these statements, how a preparation containing so much of the "real active principle" could be made from an inert or nearly inert root, I proceeded to test the value of the dried root by experiment.

I had in my possession some stillingia, which, after being dried and crushed, had been left accidentally exposed in an open barrel to the full action of light and air for nearly a year. Of this, five pounds were taken and ground in a Swift's drug mill as fine as possible without sifting. It was then moistened with alcohol, packed in a percolator and allowed to stand twenty-four hours, when fresh spirit was gradually added until nine pints of tincture were obtained, when the root was sufficiently exhausted. Water was added to displace the alcohol remaining in the root and the whole resulting liquid placed in a still, heated by a water bath to recover the spirit. The yield of oil was six and a quarter ounces, to which, on account of its extreme thickness, I was obliged to add one ounce of alcohol; with this addition it was very much denser than the commercial article.

On comparison I found the oil thus prepared *much* superior to any I had purchased, and my supplies have been obtained from one of the most reliable houses in Cincinnati, where, according to Dr. King, the very best articles of this class are to be had. My preparation had the odor, taste and peculiar acridity of the root in a very marked degree; a very small quantity being sufficient to leave a burning impression on the palate for hours after tasting it; whereas the Cincinnati oil, which is supposed to be made from the fresh root, is in all these respects very inferior. I regret I was unable to procure any of the recent root, as I should like to have thoroughly tested the point as to the relative quantity as well as quality obtainable from it as compared with the dry root.

Striving to arrive at some conclusion as to the comparative merit of the preparation I had been buying, I took two fluid-drachms and exposed it in a shallow pan to the action of the air for six hours. At the end of that time I was surprised to find that it had lost more than five-sixths of its bulk by spontaneous evaporation, the product having the consistence of a soft, solid extract and weighing nineteen grains. As sent into the market this oil has a smell of ether, intended, I suppose, to meet the prejudices of the profession who favor the ethereal over the alcoholic preparation. I observed that the ethereal odor disappeared in a short time upon exposure to the air, and that the nineteen grains of resulting extract has but little taste or acridity. The following formula would be about correct for the production of this precious article: Take of solid alcoholic extract of stillingia (quality a matter of little consequence) 76 grains; alcohol 6 or 7 drachms; ether sufficient to make one ounce. For this compound you are charged from 80 cents to $1.00 per oz.

I fear that there is more mixing and adulteration carried on in the manufacture of these eclectic remedies than in any other department of pharmaceutical labor, for I have rarely, if ever, made a preparation according to any of the published formulas which did not prove very much superior in quality to any similar article I could buy from the dealers.

From the material I have had to work on I can come to no conclusion as to the relative value of the oil of stillingia made

from the recent and dried root. My opinion is that the preparation from the dried root contains all or nearly all the active matter of the drug, and that there is no necessity for recommending the fresh root to be used in this case. All such instructions should, I believe, be avoided where possible, since their tendency is to confine the manufacture of the article chiefly to the localities where the root grows most abundant—an arrangement for many reasons not desirable.

Samples are herewith submitted. No. 1, is the oil of my own preparation. No. 2, that purchased in Cincinnati. No. 3, contains the product remaining after the exposure of the Cincinnati oil to the action of the air.—*Proc. Am. Phar. Assoc.* 1868.

---

## LIQUOR BISMUTHI.

By George F. H. Markoe.

The writer has been called upon to prepare this solution quite frequently, and in considerable quantities, and after a careful trial of all the published formulas for its manufacture has found some objection to all of them. The writer cheerfully acknowledges his indebtedness to Mr. N. Gray Bartlett, to whom we owe the first good working formula given in the *Am. Jour. Pharm.*, Jan., 1865. Mr. Albert E. Ebert, in the same journal, Jan., 1866, gives an improvement on Mr. Bartlett's process by which he avoids the use of crystallized citrate of potassa, and forms the citrate of bismuth by adding citric acid to the nitrate of bismuth and then adding hydrate of potassa, by which means citrate of bismuth is precipitated and nitrate of potassa is obtained in solution, and is got rid of by washing the bismuth salt on a filter. Ebert's process is a good one, indeed the best that has been published, and the only objection the writer has to it is the use of caustic potassa to neutralize the nitric acid. The idea of adding the citric acid to the solution of nitrate of bismuth, must in justice be credited to Mr. Thos. P. Blunt, who first suggested it in the *Lond. Pharm. Journ.*, May, 1865.

The objections to caustic potassa are, that great care must be used to avoid an excess, from the fact that citrate of bismuth is

freely soluble in potassa, and thus involves a loss of bismuth if any excess happens to be used; caustic potassa is a very troublesome chemical to keep in good condition, being very prone to attract both moisture and carbonic acid from the atmosphere, by which means it becomes in a great degree unfitted for use. It is a difficult matter to get caustic potassa free from carbonate, and still more difficult to keep it so, even if free from this impurity when the bottle is first opened. Another objection is that caustic potassa is expensive.

The following modified process offers a substitute for the caustic potassa that gives excellent results. This substitute is well crystallized carbonate of soda, a salt that can at all times be obtained of good quality at a very low price. Citrate of bismuth is less soluble in carbonate of soda than in caustic potassa, hence a gain is made by using the former.

The process is the following:

Take of subcarbonate of bismuth, one troyounce.
Citric acid (in powder), 420 grains.
Nitric acid (sp. gr. 1·42), one and a half troyounces.
Crystallized carbonate of soda, 1150 grs.
Distilled water.
Alcohol, each a sufficient quantity.

Dissolve by gradual addition the subcarbonate of bismuth in the nitric acid, and when the solution is completed dilute it with a fluidounce of distilled water, add the citric acid, stir until it is dissolved. Dissolve the carbonate of soda in ten fluidounces of distilled water and gradually add the soda solution to the bismuth solution, constantly stirring the mixture. After standing for six or eight hours, transfer the mixture to a moistened paper filter, and wash to remove nitrate of soda. Transfer the magma to a mortar or evaporating dish and carefully add water of ammonia until the citrate of bismuth is dissolved. Dilute the solution with an equal volume of distilled water and treat half a fluidounce (14·7 cubic centimetres) with an excess of sulphide of ammonium, or, better still, "*sulphide of sodium*," (as suggested by the writer in a paper presented to this Association, and published in the Proceedings for 1866, 252); collect and wash the sulphide of bismuth on a tared filter, (which has

been exposed to the heat of a water bath, previous to being tared), and heat on a water bath until thoroughly dry; allow the filter and contents to cool under a bell glass over sulphuric acid, and carefully weigh. Multiply the weight of the sulphide of bismuth by the fraction ·908 to find its equivalent in teroxide of bismuth. Apply the same ratio to the remainder of the bismuth solution, and dilute it to such a degree that each fluidrachm shall contain one grain of teroxide of bismuth, seven-eighths of which measure must be made with distilled water, and the remainder with alcohol. The average product of liquor bismuthi obtained in several trials was 51 fluidounces, being about two per cent. better results than those obtained by Mr. Ebert's process.

*Boston, Mass.* —*Proc. Am. Phar. Assoc.* 1868.

---

## CARBOLIC ACID PLASTER.

By William Martindale.

Professor Lister, of the Glasgow Infirmary, having been led by the experiments of M. Pasteur, proving the germ theory of fermentation and putrefaction, and the action that carbolic acid has of destroying the vitality of these germs, has on these founded what is called "the antiseptic system of treatment in surgery," a series of papers on which he has published in the "British Medical Journal." The principle on which he proceeds is, that after the operation, air shall, as much as possible, be excluded from the wound, and that the dressings applied shall yield a constant supply of carbolic acid in the state of vapor, so that any "germs of organisms" which might obtain access to the part would become inert, their vitality being destroyed. By this means no sloughing takes place, putrefaction is entirely arrested, and the formation of unhealthy *pus*, which in the ordinary treatment causes such a drain upon the patient, is avoided. It is, in fact, "healing by the first intent."

Among the dressings employed, one of the first he used was a carbolic acid putty, made by mixing boiled linseed oil and whiting, with the addition of one part of carbolic acid to four of the oil. But this he found a somewhat clumsy and inconvenient

preparation. He next tried a carbolic acid plaster, made by mixing *emplastrum plumbi* with one-fourth of beeswax to give it sufficient consistence, and carbolic acid in the proportion of one-tenth of the whole. This is spread on calico, in a layer of about one-twentieth of an inch. It is, however, inconveniently soft, and cannot be kept spread in stock. He says, "I have since found that by increasing the proportion of litharge, the lead-soap may be made to any degree of firmness that may be desired, provided that water be not used in the manufacture. When the litharge and olive-oil are in the proportions directed by the Pharmacopœia, a certain quantity of water must be added to promote the combination of the fatty acids with the oxide of lead, and even then the process is a very tedious one. But it is an interesting fact, chemically, that if the litharge is used in about four times the Pharmacopœial proportion, although no water be employed, the combination proceeds under a brisk heat with great rapidity. It is upon this fact the following method of manufacture is based:—

"Take of

Olive-oil 12 parts (by measure).
Litharge (finely ground), 12 parts (by weight).
Beeswax, 3 parts (by weight).
Crystallized carbolic acid, 2½ parts (by weight).

Heat half the olive-oil over a slow fire, then add the litharge gradually, stirring constantly till the mass becomes thick or a little stiff; then add the other half of the oil, stirring as before, till it becomes again thick. Then add the wax gradually, till the liquid again thickens. Remove from the fire, and add the acid, stirring briskly till thoroughly mixed. Cover up close and set aside, to allow all the residual litharge to settle; then pour off the fluid, and spread upon calico to the proper thickness. The plaster made in this way can be spread by machine, and kept rolled in stock; and, if in a well-fitting tin canister, will retain its virtues for any length of time."

But for almost all purposes the antiseptic lead plaster is superseded by his lac plaster, which is made in this manner:—

"Take of Shellac, 3 parts.
Crystallized carbolic acid, 1 part.

Heat the lac with about one-third of the carbolic acid over a slow fire till the lac is completely melted; then remove from the fire and add the remainder of the acid, and stir briskly till the ingredients are thoroughly mixed. Strain through muslin, and pour into the machine for spreading plaster; and, when the liquid has thickened by cooling to a degree ascertained by experience, spread to the thickness of about one-fiftieth of an inch. Afterwards, brush over the surface of the plaster lightly with a solution of gutta percha in about 30 parts of bisulphide of carbon. When the sulphide has all evaporated, the plaster may be piled in suitable lengths in a tin box, without adhering, or rolled up and kept in a canister." The coating of gutta percha, through which the acid permeates freely, is given to prevent it adhering to the skin, as "it is desirable that such a dressing should adhere very slightly, if at all. It has this great advantage over the antiseptic lead plaster, that it cannot be softened either by a watery or an oily fluid." If made to contain much less than 25 per cent. of the acid, it is brittle, but this may be avoided by the addition of spirits of wine in an equivalent quantity, as this sample contains 12½ per cent. of acid and the same of spirits.

These plasters are generally kept applied to the part by means of ordinary adhesive plaster strapped around the edges of the piece employed. But to avoid any chance of germs getting access to the wound, to the adhesive plaster before spreading, he directs 1 per cent. of carbolic acid to be added.

Many other applications are used in this system of treatment, but these plasters being interesting pharmaceutical preparations, I have thought worthy of bringing under your notice this evening.

The samples exhibited were prepared in the Hospital Dispensary.

*University College Hospital, Dec.* 2, 1868.

In reply to an inquiry, Mr. Martindale said there was but little loss of the carbolic acid by vaporization in making the plaster. The plaster might be kept for months without losing its pliable condition, or suffering any material deterioration in strength or quality.—*Lond. Pharm. Journ., Jan.*, 1869.

## OZONIC ETHER.

The substance called ozonic ether, and which is now creating so much interest in the profession, is peroxide of hydrogen in ether. The mixture thus formed was first made by myself; I was testing the action of the peroxide of hydrogen on various substances, organic and inorganic, and having one day added a strong solution of the peroxide to some ether, I was surprised to find that a portion of the peroxide seemed to pass to the ether, the ether, when decanted off, having a very strong taste of peroxide, and yielding oxygen freely when treated with oxide of manganese. On being kept, the ether was discovered to undergo further change, the oxygen becoming more stable and fixed. The addition of a little alcohol to the ether facilitates the absorption of the peroxide. The combination of the oxygen with the ether and some water, although it is very slight, is persistent, for the mixture has been sent to Australia without deterioration. The compound is, without doubt, a useful agent. I think I may claim it as an addition to our list of remedies likely to hold its place.

I used it in the first instance for diffusion in the air of the sick-room, dispersing it in the form of spray. It is quick in action, and effective for purifying the air; it does not charge the air with moisture, and it does not irritate the breathing organs. The disadvantage of it is that it cannot be safely used near a light or fire. It should be sprayed through a glass tube. *Lond. Pharm. Journ, Jan.* 1869, *from Dr. Richardson, in* '*Medical Times and Gazette.*'

---

## NOTE ON CONFECTION OF SENNA.

By George F. H. Markoe.

The writer has been much annoyed by the failure of the present officinal formula to give a satisfactory product in respect to consistence and keeping qualities.

The following modified process is offered as affording a remedy for these objections, giving a confection of better consistence and one that is not liable to spoil by fermentation.

| | | |
|---|---|---|
| Take of Senna in fine powder, | 8 | troyounces. |
| Coriander " " | 4 | " |
| Purging cassia, bruised, | 16 | " |
| Tamarind, | 10 | " |
| Prune, deprived of seed, | 7 | " |
| Fig, | 12 | " |
| Sugar, | 50 | " |
| Water a sufficient quantity. | | |

Digest the purging cassia and tamarind with two pints of water, and separate the pulp by means of a coarse sieve. Digest the residue with a pint of water and separate the pulp and add to the first portion; in this pulp digest the prune and fig, previously chopped or cut in fine pieces, (a sausage machine serves an excellent purpose), and then pass the pulp through a coarse sieve and then through a fine one; in this pulp dissolve the sugar by the heat of a water bath and then add the senna and coriander, and thoroughly mix the whole, and evaporate if necessary by a water bath until the finished product weighs ninety-six troyounces.

It will be seen that no change is made in the medicinal activity of the preparation, the quantity of sugar being increased and the quantity of water decreased. The writer in following the officinal formula on the large scale, found that the preparation would keep very well through the winter, but would ferment in hot weather.

These suggestions are offered as a slight contribution to the revision of the Pharmacopœia, in 1870. A somewhat careful examination of the market, leads the writer to conclude that very much of the confection of senna offered for sale is not made in any degree in conformation with the officinal formula.

*Boston, Mass.* —*Proc. Am. Phar. Assoc.* 1868.

---

## ON EXTRACT OF MEAT.

By Frank J. Tourtelot.

In consequence of the many controversies that have recently taken place between certain European chemists, all, apparently, more or less directly interested in the successful manufacture

and introduction of the different "extracts of meat" now offered for sale in Europe, we have thought that the formula of a preparation of a similar nature, prepared by us, and for the last seven years extensively used in this country by the United States medical department and in private practice, might prove of some slight interest to the members of this Asssociation. We therefore beg leave to submit our process of its manufacture, together with a specimen of our product, as also a sample of extract of meat prepared in accordance with Liebig's formula.

After numerous and repeated experiments, and with the results kindly furnished us by several prominent physicians, we have been led to believe that an "extract of flesh" containing the *albumen* of the meat, would prove more desirable and acceptable than one deprived of that highly essential element, and with that view have based our process upon the simple principle of percolation, as applied to the preparation of medicinal fluid extracts.

10,000 lbs. (this being the quantity usually used at one operation) of fresh beef, deprived of bone, fat and sinew, finely chopped, are macerated with cold water for about two hours. Steam is then introduced into the vats in which it is contained until the temperature of the mass indicates 120° Fahr; care being taken to stir the meat frequently. The resulting liquid is then drawn off, strained and set aside. To the residue, water is again added, heat applied to point of ebullition, and so continued for some hours; the resulting liquor is then obtained by gentle pressure, and is immediately transferred to the vacuum pan which receives the *first drawing*, when the preceding is reduced to one-fourth its original bulk. The evaporation is then continued until one pound of the extract in question represents twenty pounds of pure meat, when it is poured in china jars, then covered with waxed paper, and recently, as tending towards its preservation, we coat the paper with tincture of tolu. It will be observed in the foregoing that the object in drawing off the first maceration at a low temperature is to obtain the albumen in almost an unaltered condition, and to *retain it*, by adding it to the result of the second operation, *only* when the latter shall have attained the necessary consistence to preserve it.

The sample of "Liebig's extract" made by us is similar in *color* and *taste* to the South American preparation obtained from Messrs. Van Abbot & Co., London. Recently a sample of our product was subjected to analysis by Dr. F. Mahla, and found to contain too great proportion of water, as also a small quantity of coagulated albumen, that had passed through the strainer. These defects having been remedied, we believe the specimen now before the Convention is similar in composition with that sold in Europe. We cannot understand why so exorbitant a figure should be asked in Europe for the different "Liebig's extracts" in their market. It certainly can be sold at one-half the price now asked for it, and still afford the manufacturer a handsome profit.

The sample of extract of mutton, also submitted, represents forty times its weight of clear meat and is made by *our* process.

The meat biscuits represent four pounds of fresh beef to each pound of biscuit.

*Chicago, Ill.* —*Proc. Am. Phar. Assoc.* 1868.

---

## ON THE MORPHIA STRENGTH OF COMMERCIAL OPIUM.

By. P. W. Bedford.

Query 18.—What is the morphia strength of commercial powdered opium (a number of samples); and what is the most ready means of determining it?

In accepting this query the writer continues a subject on which he presented a paper to this Association some eight years ago.

During the past year he has examined eight specimens of powdered opium, purchased from wholesale houses in our city.

The results have been as follows:

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample | No. | 1 | contained | 9·40 | per cent. | morphia. |
| " | " | 2 | " | 9·01 | " | " |
| " | " | 3 | " | 6·33 | " | " |
| " | " | 4 | " | 8·10 | " | " |
| " | " | 5 | " | 7·05 | " | " |
| " | " | 6 | " | 6·75 | " | " |
| " | " | 7 | " | 6·00 | " | " |
| " | " | 8 | " | 6·25 | " | " |

The quantities operated upon were ten and twenty grammes, and two or three such portions were taken of each sample of opium. The process used was that officinal in the U. S. P.

Recently in conversation with Prof. F. F. Mayer, he stated that the process did not yield accurate results, and suggested a process which he has used in such analysis for some time past. Since that conversation I have not been sufficiently at leisure to take up the subject, and at my request Prof. Mayer examined two specimens which I procured for him from two of our best wholesale houses.

No. 1 contained 13·60 per cent. morphia.
" 2 " 9·04 " "

To the second portion of the query, "what is the most ready means of determining it?" I am not now prepared to give a reply satisfactory to myself. The doubts thrown on my mind as to the perfect reliability of the process of the U. S. P. recently, by conversations with those more familiar with the subject, and the limited time at my disposal, have decided me to leave this portion of the query for further investigation, and another year I will continue the subject.—*Proc. Am. Pharm. Assoc.*, 1868.

---

## LIQUOR OPII SEDATIVUS.

By T. B. Groves, F.C.S.

The valuable paper of Messrs. Deane and Brady, "Microscopic Research in relation to Pharmacy," read at the Pharmaceutical Conference Meeting at Bath, probably set many experimenting in the same direction; amongst them, myself.

On returning from Bath, I tried my hand on liq. opii sed., but the results were not, I thought, worthy of publication. An additional fact or two having recently come under notice, I now offer a short *résumé* of experiments made during the years 1864–65.

Two fluidounces of laudanum, mixed with four ounces of water, were evaporated to an ounce and a half, and set aside for a day.

During the evaporation, and subsequently, it deposited a considerable amount of quasi-resinous matter.

The filtered liquid, additioned with sp. vin. rect. ʒss, formed liq. opii sed. No. 1.

The resinoid precipitate, dissolved in sp. vin. rect. and acidulated with hydrochloric acid, was mixed with water, then heated to expel sp. vin. rect., and, when cold, filtered. The filtrate, containing all the principles soluble in acidulated water, reacted as follows:—Perchloride of iron caused an intense red coloration, indicative of meconic acid; ammonia, a permanent precipitate completely soluble in ether.

The ethereal solution, spontaneously evaporated, left a pale amorphous residue, that after treatment with sp. vin. rect., etc., gave an abundant crop of tufty and stellar crystals, with some polarizers of oblong figure. It seems clear, therefore, that proof spirit dissolves more meconic acid, narcotina, and narceia than does a similar bulk of pure water.

Liquor No. 1, evaporated on a glass slip side by side with Battley's, gave a microscopic figure very different from, and far inferior to it.

Both liquors had an acid reaction with litmus paper. Two drachms of each of them and of laudanum were separately evaporated to dryness, and the residues calcined under the same circumstances.

1. Battley's liquor gave . . . . . ·4 gr.
2. No. 1 . . . . . A trace.
3. Laudanum . . . . . ·05 gr.

The ash of Battley's liquor consisted of sulphate and carbonate of lime, and its washing water was neutral in reaction. The ash of the laudanum consisted of deliquescent carbonate of potash and a lime salt.

Liquor No. 2 was made by boiling gently for half an hour two drachms of crude opium in two ounces of water, neutralizing the acidity of the decoction with milk of lime at the end of that time. The fluid, thrown on a filter, was washed up to fifteen drachms; then five drachms of sp. vin. rect., and four drops of dilute sulphuric acid were added. The use of lime and sulphuric acid was indicated by the composition of the ash of Battley's preparation.

The liquor gave a good yield of microscopic crystals, but less

numerous than was expected. Narcotina was not present. It was found also that the whole of the meconic acid had been removed. Two drachms evaporated, and the residue calcined, gave ·5 grain of ash, consisting of sulphate and carbonate of lime and chloride of calcium. The concentration of the liquor by evaporation rendered the crystallization indistinct; heat, therefore, long applied has an injurious tendency. This experiment was varied in several ways, without getting a better result.

Liquor No. 5 was prepared by boiling for a quarter of an hour three drachms of crude opium in two ounces of water. The fluid, thrown on a filter, was washed up to two ounces. The filter was then pressed, and the liquids mixed. The mixed liquids, digested with carbonate of lime to remove free meconic acid, and filtered, were reduced by cautious evaporation to eleven drachms, and four drachms sp. vin. rect. added. This addition caused a precipitation that was apparently of a double character, but on examination only meconate of lime could be identified. The chalk, etc., on the filter was washed with water and dissolved in dilute hydrochloric acid. The solution was bitter to taste, contained but a trace of meconic, and no sulphuric acid. Ammonia in excess and ether removed from it a considerable amount of narcotina, which was obtained finely and distinctly crystallized. Subsequent agitation with acetic ether proved the absence of morphia.

The finished liquor gave evidence of the presence of meconic acid, and of another precipitant (? thebolactic acid) of peroxide of iron. Two drachms, evaporated to dryness and the residue calcined, gave ·4 grain of ash, consisting mainly of sulphate of lime, with just sufficient reduced sulphide to give it alkalinity. Spontaneously evaporated side by side with Battley's, it gave an inferior crystallization, nor was its flavor comparable with that of the "original." However, it contained no narcotina.

This experiment was varied several times, sometimes with a better, sometimes with a worse result.

Finally, the whole of the samples were mixed and set aside, and for some months forgotten. It was then observed that the bottle containing it had assumed the appearance characteristic

of liq. opii sed., and that the odor and taste of the liquid had sensibly improved. It was therefore tried again as to its crystallographic character, and it was found that the resinous precipitation on the bottle had freed the crystalline bodies from an impediment that had hitherto obstructed their assuming definite forms; the microscope crystallization was, in fact, as good as could be desired, but the liquor having been reduced to the strength of laudanum before being put away, the crystals were only about half as numerous as in the case of the genuine Battley.

The formula I recommend for a liquor opii of the same strength as tinct. opii, B.P., is as follows:—

| | | |
|---|---|---|
| Take of | powdered opium . . . . . | 1½ oz. |
| | Prepared chalk . . . . . | ¼ oz. |
| | Rectified spirits . . . . . | 5 fl. oz. |
| | Distilled water . . . . . | q. s. |

Boil gently for half an hour the opium and chalk with one pint of distilled water; filter; wash up to fifteen ounces, and add the spirit. After a few days' repose, filter again. It improves much by being kept. Of course, the finer the opium, the better the liquor.

Should the narcotina be thought worth recovering, the opium may be boiled with water alone, and the chalk subsequently added. The narcotina may be easily extracted from the dried chalk by boiling it with rectified spirit.

The physiological action of this preparation has been compared with that of opium. It has been found to produce the narcotic effects of that drug, without entailing the unpleasant after-effects so often complained of. I must explain that my Liq. Opii is not designed as a substitute for Battley's preparation, which I invariably use when liq. opii sed. is ordered. It may be regarded as a suggested improvement of ext. opii liq., B.P.—*Lond. Pharm. Journ., Jan.*, 1869.

---

## THE ZIRCONIA LIGHT.

Messrs Tessié du Motay and Co., have patented an invention for improvements in preparing zirconia, and the employment of

the same to develope the light of oxyhydrogen flame. The specification is as follows:—

Zirconia, or oxide of zirconium, in whatever manner it may be extracted from its ores, can be agglomerated by compression; for example, into sticks, discs, cylinders, or other forms suitable for being exposed to the flame of mixtures of oxygen and hydrogen, without undergoing fusion or other alteration. Of all the known terrous oxides it is the only one which remains entirely unaltered when submitted to the action of a blowpipe fed by oxygen and hydrogen, or mixture of oxygen with gaseous or liquid carbonated hydrogens. Zirconia is also, of all the terrous oxides, that which, when introduced into an oxyhydrogen flame, develops the most intense and the most fixed light.

To obtain zirconia in a commercial state I extract it from its native ores by transforming by the action of chlorine in the presence of coal or charcoal the silicate of zirconium into double chloride of zirconium and of silicium. The chloride of silicium, which is more volatile than the chloride of zirconium, is separated from the latter by the action of heat; the chloride of zirconium remaining is afterwards converted to the state of oxide by any of the methods now used in chemistry. The zirconia thus obtained is first calcined, then moistened, and submitted in moulds to the action of a press with or without the intervention of agglutinant substances, such as borax, boracic acid, or clay. The sticks, cylinders, discs, or other forms thus agglomerated, are brought to a high temperature, and thus receive a kind of tempering or preparing, the effect of which is to increase their density and molecular compactness.

I can also compress in moulds shaped for the purpose a small quantity of zirconium capable of forming a cylinder or piece of little thickness, which may be united by compression in the same mould to other refractory earths, such as magnesia and clay. In this manner I obtain sticks or pieces of which only the part exposed to the action of the flame is of pure zirconia, while the remaining portion which serves as a support to it is composed of a cheap material.

The property composed by zirconia of being at once the most infusible, the most unalterable, and the most luminous of all the

chemical substances at present known when it is exposed to the action of an oxyhydrogen flame, has never before been discovered, nor has its property of being capable of agglomeration and moulding, either separately or mixed with a small portion of an agglutinant substance.—*Chem. News*, *Dec.* 11, 1868.

---

## ON METALLIC BISMUTH.

By C. H. Wood, F.C.S.

The issue of the discussion which has taken place in the Pharmaceutical Journal, on the Liquor Bismuthi et Ammoniæ Citratis of the British Pharmacopœia, is dependent on the nature and amount of the impurities present in commercial bismuth, and the efficiency of the nitre process for their removal. Although several communications from different contributors have been published upon this subject, no one has yet given any exact estimate of the quantity of impurity which the metal usually contains, and the proportion of this which can or cannot be removed by the Pharmacopœia method.

The officinal process for the purification of bismuth is in accordance with the method indicated by most chemical authorities. Gmelin, Watts, and other authors state that the impurities of bismuth are removed by fusion with nitre. Mr. Schacht's experiments sufficiently demonstrates the possibility of removing the whole of the arsenic by this means. It is true that, in some fusions, Mr. Schacht found a portion of the arsenic still remained in the metal, but we are not informed what the proportions were before or after, and we have every right to assume that, by continuing or repeating the process, the whole might have been removed in these as in the other cases. My own experiments have sufficiently satisfied me that the Pharmacopœia method is an efficient one for the complete removal of arsenic, antimony, and sulphur. The most careful application of Marsh's test has failed to detect either of the former substances in any sample of the metal I have purified.

Mr. Schacht and others, however, have brought forward experiments to show that the nitre process fails to remove the copper from bismuth, and have urged this point as one of the

strongest objections to the Pharmacopœia method. It is certainly true that fusion with nitre is useless for the removal of very small quantities of copper. Down to what proportion it is possible to reduce the copper by this means I am not prepared to say, and I do not know that any experiments have been published on the point. I cannot admit, however, that the nitre fails to remove any portion of this impurity, as some have implied; for the following experiment goes to show the contrary. Messrs. Johnson and Matthey were kind enough to prepare for me a piece of bismuth containing 2·9 per cent. of copper. I fused this for ten minutes with one-fifth its weight of nitre, and then analysed the product. I found it to contain only 1·51 per cent. Consequently, nearly one-half the copper had in this case been removed. Nevertheless, I cannot deny that fusion with nitre fails to remove the last portions of copper, and is therefore useless as far as small percentages of this impurity are concerned.

Admitting this, it becomes important to know the exact amount of copper commonly present in the metallic bismuth of commerce. To ascertain this point, consequently, I have taken three commercial samples of metal, and have made quantitative determinations of the amount of copper in each. The analysis was performed as follows:—One hundred grains of the metal were dissolved in dilute nitric acid, and the solution evaporated until a pellicle formed. About an ounce of a saturated solution of sal ammoniac was then added, the mixture slightly warmed, and diluted to the bulk of thirty or forty ounces with cold water. All the bismuth was thus completely precipitated as insoluble oxychloride, leaving the copper, etc., in solution. After some hours' repose the liquor was filtered, and the precipitate washed. The filtrate was evaporated to about two ounces, and a slight excess of ammonia added. After filtration, the liquor was acidified and precipitated by sulphuretted hydrogen. The sulphide was collected, washed with dilute sulphide of sodium, and dissolved in aqua regia. The solution was evaporated to dryness. The copper in the residue was then estimated, by precipitation with zinc in a platinum dish and weighing as metal, after the manner recommended by Fresenius.

The results obtained were as follows :—

| | | |
|---|---|---|
| Sample No. 1 | . . . . | 0·12 per cent. |
| " No. 2 | . . . . | 0·07 " |
| " No. 3 | . . . . | 0·05 " |

Liquor bismuthi prepared from the worst of these would contain about 0·0048 grain of copper in one fluid-drachm ; that is to say, less than the $\frac{5}{1000}$ th part of a grain in a dose. Mr. W. L. Howie,* in a paper read before the Glasgow Chemists and Druggists' Association, in October, 1866, stated that he found the quantity of copper present in different samples of bismuthi to vary from 0·04 to 0·1 per cent. My results are in close accord with this statement.

The fact that the nitre fusion fails to remove the copper constantly present in commercial bismuth has been the chief argument employed against the Pharmacopœia process for liq. bismuthi. When it is seen that the amount of copper in the metal need never exceed one part in a thousand, and will generally be much less, this objection, I think, loses much of its importance. The total impurities present in the doubly refined bismuth prepared and supplied for pharmaceutical and chemical purposes by Messrs. Johnson and Matthey are stated by the refiners never to exceed 0·5 per cent., and frequently to amount to not more than 0·3 per cent. I venture to think that such metal would bear comparison, in point of purity, with a very large number of chemical products now used in medicine.

But although, at the present day, all commercial bismuth contains an appreciable percentage of impurities, that is so only because there is no demand for a purer metal. In 1865, three years ago, Messrs. Johnson and Matthey exhibited in Dublin a large quantity of *chemically pure* bismuth. This metal was also shown at the Paris Exhibition last year. It can be produced in any quantity when required, and its price at the present time is 40*s.* per lb., the present cost of the commercial metal of good quality being 19*s.*, and that of the double refined metal already referred to 22*s.* 6*d.* A sample of this bismuth was kindly lent to me by Messrs. Johnson and Matthey, and placed upon the

* Pharm. Journ., vol. viii, p. 407.

table at the last Pharmaceutical Meeting. No doubt the comparatively high price of this pure metal has hitherto prevented its use in pharmacy.

---

M[illegible]tson said he had found the same difficulty in the metallic bismuth of commerce that Mr. Wood had; namely, that of getting rid of all traces of copper. There were many different qualities of commercial bismuth in the market, but he had generally found that if they could only procure Saxony bismuth, it contained as little as 0·001 of copper and no arsenic; whereas the qualities generally met with contained 0·004 or 0·5 per cent. The bismuth that had been imported from Australia lately contained a much larger proportion of copper, and also traces of arsenic. He had frequently tried bismuth by fusion with nitre, but could not get rid of the last traces of copper.

Dr. Attfield thought too much had been made of the presence of a trace of copper in bismuth, and too little of other impurities which were colorless. He should like to ask Mr. Wood whether his one part of copper in one thousand of bismuth gave much of a blue color to the liquor, say, when they were looking at a Winchester quart; and he should like to ask Mr. Watson what sort of a result, so far as the eye was concerned, he got with bismuth containing 1-10,000th part of copper? Chemists and druggists generally, he feared, depended too much on the eye and too little on the test-tube.

The President remarked that there was another point of view in which he suspected they looked at it, and that was the cost. If it became a question simply of purity, there was not the slightest difficulty; but it was a question of cost. There had been imported into this country large quantities of bismuth from Australia and Peru, and many of these specimens of metal were certainly very impure; but there is one process which had been found to succeed, and that was at once to crystallize out the nitrate of bismuth, and by operating upon that they would get a bismuth which would be tolerably pure, the impurities remaining in the mother liquor almost entirely. That, however, was a long process, and they could do it with the other process quite well enough for medicinal purposes.

Dr. Redwood mentioned that there was not so much bismuth produced in Saxony now as formerly, the mines not being so fully worked as they used to be.

Mr. Watson, in reply to Dr. Attfield's question as regarded the color inseparable from the solution made by the best Saxon bismuth, said he found they could trace it clearly by the eye by adding a few drops of ammonia. He remembered some few months ago sending out some bismuth to a provincial chemist, containing, he believed, not more than 0·05 of copper, and it was returned to them.

Mr. Wood remarked, with reference to Dr. Attfield's inquiry, that the color was due somewhat to the method of making the liquor. If the liquor were made with an appreciable excess of ammonia, and put into a wide bottle of some size, there would be a perceptible tint of color. But it was not necessary to have that excess of ammonia; it was possible to re-neutralize that ammonia by acetic acid; and if they did that there would be no perceptible color, or, at any rate, so far as his experience went, none which would at all interfere with the use of the product in pharmacy. No doubt the whole thing was a matter of cost and of hypercriticism, because he apprehended that if there were a slight trace of color in the product, as a medicine it would not in the slightest degree interfere. But with regard to the cost he might state that, even in using the chemically pure bismuth which he had referred to, and which Johnson and Matthey sold at 40*s*., it was possible to make a liquor at 3*s*. a pound, which, he believed, was the price the original solution was sold at, although that was only one-third the strength of the solution made according to the Pharmacopœia; so that, if chemically pure bismuth was required, its cost ought not to stand in the way.—*Lond. Pharm. Journ. Jan.*, 1869.

---

## A NEWLY-DISCOVERED PROPERTY OF GUN-COTTON.

It has been found that the explosive force of gun-cotton may, like that of nitro-glycerin, be developed by the exposure of the substance to the sudden concussion produced by a detonation; and that if exploded by that agency, the suddenness and consequent violence of its action greatly exceed that of its explosion by means of a highly heated body or flame. This is a most important discovery, and one which invests gun-cotton with totally new and valuable characteristics; for it follows, as recent experiments have fully demonstrated, that gun-cotton, even when freely exposed to air, may be made to explode with destructive violence, apparently not inferior to that of nitro-glycerin, simply by employing for its explosion a fuse to which is attached a small detonating charge. Some remarkable results have been already obtained with this new mode of exploding gun-cotton. Large blocks of granite and other very hard rock, and iron plates of some thickness, have been shattered by exploding small charges of gun-cotton, which simply rested upon their upper surfaces—an effect which will be sufficiently surprising to those who have hitherto believed, as every one has be-

lieved, that unconfined gun-cotton was scarcely to be considered as explosive at all, that it puffed harmlessly away into the air, not exerting sufficient force upon the body on which it might be resting to depress a nicely balanced pair of scales, supposing the charge to be fired upon one plate of the scale. Further, long charges or trains of gun-cotton, simply placed upon the ground against stockades of great strength, and wholly unconfined, have been exploded by means of detonating fuzes placed in the centre or at one end of the train, and produced uniformly destructive effects throughout their entire length, the results corresponding to those produce by eight or ten times the amount of gunpowder when applied under the most favorable conditions. Mining and quarrying operations with gun-cotton applied in the new manner have furnished results quite equal to those obtained with nitro-glycerin, and have proved conclusively that if gun-cotton is exploded by detonation it is unnecessary to confine the charge in the blast-hole by the process of hard-tamping, as the explosion of the entire charge takes place too suddenly for its effects to be appreciably diminished by the line of escape presented by the blast-hole. Thus the most dangerous of all operations connected with mining may be dispensed with when gun-cotton fired by the new system is employed. It will readily be observed that this discovery, which we believe is due to Mr. Brown, of the War Office Chemical Establishment, is likely to be attended with the most important results. Not merely is the strength of gun-cotton exploded in this way much greater than that of the same substance fired by simple ignition, but it now operates under conditions which were sufficient under the old system practically to deprive gun-cotton of its power. It has been said, and said justly, that if you want gun-cotton to exert itself you must coax it into the belief that it has a great deal to do. You must give it bonds to break and physical obstacles to overcome, with no outlet or possibility of escape. But now gun-cotton will exert itself, and put forth more than what was believed to be its full strength, whether it see any work to do or not. It will behave as less coy explosives have behaved before it—always with this difference, that it is half-a-dozen times as powerful as any of its rivals, with the exception

of nitro-glycerin, to which in mere power even it is not inferior. This discovery, therefore, can hardly fail to give a considerable impetus to gun-cotton, and to lead to its universal adoption for mining purposes, as soon as its new properties become generally known. In connection with possible military applications the discovery is invaluable. There can no longer be any doubt what agent should be employed for the breaching of stockades and the like; and the absence of all necessity for the use of strong confining envelopes will have an important bearing on the employment of gun-cotton for torpedos and all submarine explosive operations, besides greatly simplifying mining and breaching operations in the field. We have, in fact, discovered several new advantages to add to those which already had sufficed to recommend gun-cotton as an explosive agent in preference to all others. The conditions that are fulfilled by a detonating fuse in determining the violent explosion of gun-cotton, under circumstances which hitherto have been altogether unfavorable to such a result, have been made the subject of investigation by Mr. Abel, and we hope at some future time to notice the conclusions at which he has arrived, as they appear to have a very important general bearing upon the conditions which regulate the development of explosive force, not merely from gun-cotton and nitro-glycerin, but from explosive compounds and mixtures generally. Meanwhile, it is satisfactory to be able to record what has been done, and to add that the subject is now occupying much attention at Woolwich and Chatham, under the intelligent direction of the department to which the discovery is due. —*Chem. News, Dec.* 4, 1868, *from Pall-Mall Gazette.*

---

## HAIR AND HAIR DYES.

The attention which we called, some time since, to the new and perfect black hair dye which Dr. M'Call Anderson lately incidentally hit upon, produced a long series of commentaries from accomplished dermatologists and others, well qualified to speak on the not uninteresting subject. Mr. Erasmus Wilson, a leader amongst the professors of dermatology, now enters upon, and discusses the whole question in a series of very interesting ob-

servations in the 'Journal of Cutaneous Medicine.' He observes, that the hair owes its property of dyeing to its porosity; which is evidently greater than its physiological structure would lead us to infer. Another of its properties, namely, the presence of sulphur in its constitution, renders it prone to darken under the use of certain mineral substances; for example, lead and mercury, whose compounds with sulphur are black. Thus if a weak solution of lead or mercury be brushed into the hair, a certain quantity of the solution will penetrate the hair, and a dark color will be produced in consequence of the formation of a sulphuret of lead or sulphuret of mercury. The depth of the shade of color will depend upon the quantity of sulphur present in the hair, and as red hair and light-colored hair contain more sulphur than dark hair, the result will in that case be comparatively greater. But where the amount of sulphur is too minute to produce the dye, science suggests the means of introducing more sulphur, as is illustrated by a reversal of the process, in the following quotation from a paper by Dr. M'Call Anderson on *Eczema Marginatum*:—"During the treatment I accidently discovered what promises to be the most perfect black dye for the hair which has been seen. After having used the bichloride lotion for some weeks, I changed it for the lotion of hyposulphite of soda; and the morning after the first application, the hair of the part which before was bright red, had become nearly black. One or two more applications rendered it jet-black, while neither the skin nor the clothing was stained. I saw this patient a couple of weeks later, and their was not the least deterioration of color; although, of course, as the hair grows the new portions will possess the normal tint." The reason of the escape of the epidermis, while the hair was so thoroughly dyed, is that it contains no sulphur. Mr. Balmanno Squire, in a commentary on the above process, observes that if instead of the hyposulphite of soda one of the more common mordants be employed—say, for example, the sulphide of ammonium, "instead of a black, a bright red color will result. The *modus operandi* of Dr. Anderson's dye is this. The hyposulphurous acid, on being liberated from the soda, decomposes into sulphurous acid and sulphur. The sulphurous acid reduces the bichloride of mercury to the

chloride, and the sulphur converts the chloride into (black) sulphide. The effect of the sulphide of ammonium on bichloride of mercury is to produce the (red) bisulphide which is the common vermillion of commerce." Another commentator on "hair dyes" observes that, with the barbers the "sheet-anchor appears to be lead and lime." And again it is recommended to "first wash the hair with a solution (ten grains to the ounce) of nitrate of silver; then use a weak solution of pyrogallic acid, and wash." An interesting article on the subject, from the pen of an able chemical writer, Dr. Scoffern, may be found in the May number of 'Belgravia,' under the head of "Cosmetics for the Hair." Dr. Scoffern reminds us that the Persians employ indigo to procure a blue-black dye, and the Turks and Egyptians a "pasty writing-ink," composed of pyrogallic acid in combination with a native ore of iron, while in the West the chief constituents of hair-dyes are metallic bodies and walnut-juice. The metals chiefly in use as "capillary chromatics" are silver, lead, and arsenic; while others applicable to a similar purpose are gold, bismuth, iron, copper, cadmium, titanium, uranium, and molybdenum. Lead, in its crudest form, is represented by the leaden comb; but as the process by this means is slow, a compound of oxide of lead or litharge, with lime, and made into a paste with water, is more commonly employed. This is smeared on the hair at night, the evolved gases being imprisoned by an oilsilk cap, and in the morning the dried paste is brushed out, and the hair refreshed with pomatum. Or, if a so-called brown, a "smothered" or "fusty black" be required, the paste should be mixed with milk instead of water. The night is preferable for these remedies, because the hair is supposed to exhale more sulphur at this period than during the day. These preparations remind us of a lotion in common use at the present time, consisting of a drachm of acetate of lead with twice the quantity of sulphur to half a pint of water. The nitrate of silver is another common form of dye, but is open to the objection of staining the skin, and, in fact, everything it touches, and also of becoming iridescent on exposure to light, producing, as Dr. Scoffern observes, a "chromatic play of tints," which is very undesirable. Bismuth presents the same characteristics as lead, but is not

much used; and when iron is employed to produce a black tint, it requires for its mordants either the pyrogallic acid or the hydrosulphate of ammonia. Brown is produced by the chloride of gold alone, as also by a solution of sulphate of copper with a mordant of the prussiate of potash (ferrocyanide of potassium); and titanium, uranium and molybdenum, judged by their chemical behavior, would give rise to similar results. The "golden-yellow color," so much in fashion of late, is produced by a solution of arsenic with a mordant of the hydrosulphate of ammonia. And cadmium would probably give rise to a similar result. In the case of dyeing the lighter tints, however, it becomes necessary to submit the hair to a process of bleaching, which is commonly effected by a solution of one or other of the alkalies, by chlorine, by the chloride of soda or lime, or by sulphurous acid, bisulphate of magnesia or lime, or peroxide of hydrogen. In general, the dyes requiring mordants do not stain the epidermis.—*Lond. Pharm. Journ., Jan.*, 1869, *from The British Medical Journal.*

---

## A NEW TEST FOR HYDROCYANIC ACID IN VAPOR.

By M. Schonbein.

M. Schönbein has given to the French Academy of Medicine a description of a new and extremely delicate reagent for the detection of hydrocyanic acid in the state of vapor. It consists of paper imbued with resin of guaiacum, and moistened with a solution of sulphate of copper at the moment of use. In contact with hydrocyanic acid, the prepared paper immediately assumes a blue color. Three parts of resin of guaiacum are dissolved in a hundred parts of rectified spirit. White filtering-paper is steeped in this solution and dried. The paper should remain white. A solution is prepared of one part of sulphate of copper in five hundred parts of water. To employ the test, a slip of the paper is moistened with this solution of sulphate of copper, and brought in contact with hydrocyanic acid, either dissolved in water or diffused in the air, when it immediately becomes blue. The sensitiveness of the reaction is shown by the following experiments:—

A single drop of a solution of hydrocyanic acid containing 1 per cent. of real acid, is placed in a vase of 20 litres capacity. A strip of the prepared paper is suspended by a wire in the middle of the vase, which is then covered. The blue tint rapidly becomes apparent. A drop measures $\frac{1}{20}$th of a cubic centimetre, and the vase holds 20 litres, or 20,000 cubic centimetres; consequently, the relation of the drop to the vase is 1 to 20 times 20,000, or 1 to 400,000. But the drop contains only 1 per cent. of real acid, therefore the proportion of hydrocyanic acid in the vase is 1 in 400,000 + 100, or 1 in 40,000,000. The author states that this division may be pushed even further, and that 1 in 120,000,000 of air may be detected.

The following experiment indicates the value of this test in toxicological inquiries:—A piece of fresh meat, weighing 600 grammes, was divided into two equal parts; one part was sprinkled with 20 drops of the 1 per cent. solution of hydrocyanic acid, and then exposed to the air for twenty-four hours. At the end of this time it was placed in a vase of 25 litres capacity, and a piece of the test paper suspended over it. In two minutes the coloration of the paper commenced, and a few minutes later was complete. The other piece of meat was kept for comparison, and exposed in another vase in precisely the same manner, but no reaction was obtained. Careful experiments were made with this paper upon the vapors of other acids, but these exerted no influence. The color developed on the paper by hydrocyanic acid remains for a long time, but diminishes as the paper dries. After several days it passes to a greenish-grey, but revives slightly on remoistening the paper.—*Lond. Pharm. Journ.*, *Jan.*, 1860.

---

## TURPENTINE AN ANTIDOTE TO PHOSPHORUS.

M. Vigla states that, in a certain lucifer factory, the workmen who dip the matches wear on their chest a little vessel containing essence of turpentine, which is said to preserve the operators from the evil effects of the phosphorous vapors. It is well known that the vapor of turpentine, and many other hydrocarbons completely extinguishes the phosphorescent light which

phosphorus ordinarily emits when in contact with air, and apparently prevents the slow combustion from taking place. Its influence in protecting the workmen may be due to this property.

Dr. Andant relates, in the 'Bulletin Général de Thérapeutique,' a curious case to show the influence of turpentine in phosphorus poisoning. A workman, sixty-three years old, wishing to commit suicide, masticated the tipped ends of a boxful of wax matches. Immediately afterwards, thinking to assist the action of the poison, he swallowed about half an ounce of essence of turpentine mixed with a pint of water. After some time, finding the poison did not act, he chewed the ends of two more boxfuls of matches, and then lay down, as he thought, to die. He suffered from extreme thirst, some pain in the bowels, accompanied by constipation, but nothing more. He had taken the phosphorous contained on about a hundred and fifty matches, but, thanks to the turpentine, he recovered, enduring no ill effects, and with no medical treatment beyond a dose of castor-oil.—*Lond. Pharm. Journ. Jan.*, 1869.

---

## ETHERIZED COD-LIVER OIL.

In a paper recently published in the 'British Medical Journal,' by Dr. Balthazar A. Foster, there are certain results of his investigation and observation stated, on the advantage of combining ether with cod-liver oil, which, although in the main, for the consideration of the physician, may not be uninteresting, nor perhaps unimportant, to the pharmaceutist. Taking it as an established fact, that the difficulty of assimilating fat, is a constant characteristic of the dyspepsia of phthisis, and further, that a marked improvement in such patients is observed when the ability to digest fatty matter is restored, Dr. Foster has set himself to work to determine the best means of "*augmenting the secretions which are specially devoted to the digestion of fatty matters*," and has determined to his own satisfaction that, "*ether not only obtains for us the secretions required to digest fats, but promotes the absorption of these fats when digested.*" In some cases the ether has been given in water alone before the oil; but the favorite method seems to be to combine the two, in the

proportion of from ten to twenty minims of ether purus, P. B., to two drachms of oil. One advantage of the combination seems to be the power of the former to mask the unpleasant properties of the latter. Dr. Foster recites many cases to prove that where cod-liver oil by itself had failed to produce improvement and to arrest the wasting, the addition of ether has been eminently successful in allaying nausea, and producing a decided increase in the weight of the patient.—*Lond. Pharm. Journ., Jan.*, 1869.

---

## ON THE RELATION OF HYDROGEN TO PALLADIUM.*

By Thomas Graham, F. R. S., Master of the Mint.

It has often been maintained on chemical grounds that hydrogen gas is the vapor of a highly volatile metal. The idea forces itself upon the mind that palladium with its occluded hydrogen is simply an alloy of this volatile metal in which the volatility of the one element is restrained by its union with the other, and which owes its metallic aspect equally to both constituents. How such a view is borne out by the properties of the compound substance in question will appear by the following examination of the properties of what, assuming its metallic character, would fairly be named hydrogenium.

*Density.*—The density of palladium when charged with 800 to 900 times its volume of hydrogen gas is perceptibly lowered, but the change cannot be measured accurately by the ordinary method of immersion in water, owing to a continuous evolution of minute hydrogen bubbles which appear to be determined by contact with the liquid. However, the linear dimensions of the charged palladium are altered so considerably that the difference admits of an easy measurement, and furnishes the required density by circulation. Palladium in the form of wire is readily charged with hydrogen by evolving that gas upon the surface of the metal in a galvanometer containing dilute sulphuric acid, as usual.* The length of the wire before and after a charge is found by stretching it on both occasions, by the same moderate weight, such as will not produce permanent distention, over the surface of a flat graduated measure. The measure was graduated to hundredths of an inch, and by means of a vernier the divisions could be read

* Proceed. Royal Society, p. 422, 1868.

to thousandths. The distance between two fine cross lines marked upon the surface of the wire near each of its extremities was observed.

*Expt.* 1.—The wire has been drawn from welded palladium, and was hard and elastic. The diameter of the wire was 0·462 millimetre; its specific gravity was 12·38, as determined with care. The wire was twisted into a loop at each end, and the mark made near each loop. The loops were varnished so as to limit absorption of gas by the wire to the measured length between the two marks. To straighten the wire, one loop was fixed, and the other connected with a string passing over a pully and loaded with 1·5 kilogramme, a weight sufficient to straighten the wire without occasioning any undue strain. The wire was charged with hydrogen by making it the negative electrode of a small Bunsen's battery consisting of two cells, each of half a litre in capacity. The positive electrode was a thick platinum wire placed side by side with the palladium wire, and extending the whole length of the latter, within a tall jar filled with dilute sulphuric acid. The palladium wire had, in consequence, hydrogen carried to the surface for a period of one and a half hour. A longer exposure was found not to add senibly to the charge of hydrogen acquired by the wire. The wire was again measured, and the increase in length noted. Finally, the wire being dried with a cloth, was divided at the marks, and the charged portion heated in a long narrow glass tube kept vacuous by a Sprengel aspirator. The whole occluded hydrogen was thus colleted and measured; its volume is reduced by calculation to Bar. 760 m.m., and Therm. 0° C.

The original length of the palladium wire exposed was 609·144 m.m. (23·982 inches), and its weight 1·6832 grm. The wire received a charge of hydrogen amounting to 936 times its volume, measuring 128 c.c., and therefore weighing 0·01147 grm. When the gas was ultimately expelled, the loss as ascertained by direct weighing was 0·01164 grm. The charged wire measured 618·923 m.m., showing an increase in length of 9·779 m.m. (0·385 inch). The increase in linear dimensions is from 100 to 101·605; and in cubic capacity assuming the expansion to be equal in all directions, from 100 to 104·908. Supposing the two metals united

without any change of volume, the alloy may therefore be said to be composed of—

| | By volume. | | |
|---|---|---|---|
| Palladium, . . . . . | 100 | or | 95·32 |
| Hydrogenium, . . . . . | 4·908 | or | 4·68 |
| | 104·908 | | 100 |

The expansion which the palladium undergoes appears enormous if viewed as a change of bulk in the metal only, due to any conceivable physical force, amounting as it does to sixteen times the dilatation of palladium when heated from 0° to 100° C. The density of the charged wire is reduced by calculation from 12·3 to 11·79. Again, as 100 is to 4·91, so the volume of the palladium, 0·1358 c.c. is to the volume of the hydrogenium 0·006714 c.c. Finally dividing the weight of the hydrogenium, 0·01147 grm by its volume in the alloy, 0·006714 c.c. we find

Density of hydrogenium . . . . . 1·708

The density of hydrogenium, then, appears to approach that of magnesium, 1·743, by this first experiment.

Further, the expulsion of hydrogen from the wire, however caused, is attended with an extraordinary contraction of the latter. On expelling the hydrogen by a moderate heat, the wire not only receded to its original length, but fell as much below that zero as it had previously risen above it. The palladium wire first measuring 609·144 m.m., and which increased 9·77 m.m., was ultimately reduced to 599·444 m.m., and contracted 9·7 m.m. The wire is permanently shortened. The density of the palladium did not increase, but fell slightly at the same time, namely, from 12·38 to 12·12; proving that this contraction of the wire is in length only. The result is the converse of extension by wire-drawing. The retraction of the wire is possibly due to an effect of wire-drawing, in leaving the particles of metal in a state of unequal tension, a tension which is excessive in the direction of the length of the wire. The metallic particles would seem to become mobile, and to right themselves in proportion as the hydrogen escapes; and the wire contracts in length, expanding, as appears by its final density, in other directions at the same time.

A wire so charged with hydrogen, if rubbed with the powder

of magnesia (to make the flame luminous), burns like a waxed thread when ignited in the flame of a lamp.

[The foregoing is about a quarter of the paper of Prof. Graham, which is too long for insertion in this journal. What follows is an abbreviation of the remainder.—ED. AM. JOUR. PHARM.]

*Expt.* 2.—Another portion of the same palladium wire was charged as before with hydrogen. Length of wire 488·976 m.m., gas occluded, 867·15 volumes; linear elongation 6·68 m.m.; density of hydrogenium 1·898.

*Expt.* 3.—Length of wire 556·185 m.m., gas occluded 888·303 volumes; linear elongation 7·467 m. m.; density of hydrogenium 1·977.

Various other experiments were made, showing a remarkable approximation in density, except in one instance, which was considered exceptional—viz: 2·055, 1·930, 1·927, 1·917, 1·898, 1·977, 1·708. The mean density excluding the last is 1·951 or nearly 2.

A curious result was that, in charging and discharging of the same palladium wire, it became shorter each time, but as the specific gravity of the metal was unaltered, it follows that the the contraction in length was accompanied by expansion in diameter. Repeated experiment on the same wire reduced its length 15 per cent. This retraction was also proved to not be due to heat, as it occurred when the hydrogen was removed at the ordinary temperature by making it, the wire, the positive electrode of the battery so as to oxidize the hydrogen. Repeated charging and discharging by heat reduced the absorbing capacity of the wire to one-third. This capacity is partially restored by the passage of an electrical current while red hot, and may be restored fully by extracting the hydrogen by electrolysis in an acid fluid. The molecular structure of the palladium appears to undergo great changes by the repeated absorption and removal of the hydrogen.

2. *Tenacity.*—Palladium wire similar to the last was broken by from 10 to 10·17 kilogrammes weight; when charged with hydrogen it was broken on an average by 8·22 kilogrammes. The tenacity of the palladium is found to be somewhat reduced after the removal of the hydrogen.

3. *Electrical Conductivity.*—Careful experiments by Mr. Becker gave the relative conducting power of the metal and alloy

with copper as follows, viz: Pure copper 100, palladium 8·10, alloy of 80 copper + 20 nickel 6·63, palladium and hydrogen 5·99. This is in accordance with the usual decreased conducting power of alloys, and is in favor of the metallic character of hydrogenium.

4. *Magnetism.*—Faraday determined palladium to be "feebly but truly magnetic." Various careful and ingenious experiments were made with the alloyed wire, the results of which cause Prof. Graham to believe that hydrogenium is magnetic, a property which is confined to metals and their compounds, and is so much more magnetic than palladium that he inclines to range it in the strictly magnetic group with iron, nickel, cobalt, chromium and manganese.

*Palladium with Hydrogen at a High Temperature.*—Heated palladium is readily permeated by hydrogen gas by a process analogous to cementation. Four litres of hydrogen per minute was passed through a palladium plate 1 m.m. in thickness and a square metre of surface at a bright red heat.

*The Chemical Properties* of hydrogenium distinguish it from gaseous hydrogen. The palladium alloy precipitates mercury and calomel from a solution of corrosive sublimate without any disengagement of hydrogen. Hydrogenium (alloyed with palladium), unites with chlorine and iodine in the dark, reduces a persalt of iron to the proto state, converts red into yellow prussiate of potash, and has considerable deoxidizing power. It appears to be the active form of hydrogen, as ozone is of oxygen.

The general conclusions arrived at are, that fully charged palladium is an alloy of one equivalent of each metal; that both are solid, metallic, and of white aspect; that the alloy contains about 20 volumes of palladium united to one volume of hydrogenium; that the density of the latter is about 2, a little higher than magnesium, to which metal it is supposed to bear some analogy; that hydrogenium has a certain amount of tenacity, and possesses the electrical conductivity of a metal; and, finally, that hydrogenium takes its place among magnetic metals. The latter fact in connection with the appearance of hydrogen in meteoric iron opens out a subject of speculation.—*Chem. News, Jan. 29th, and read before Royal Soc. Jan. 14th.*

*List of the Contributors to the Building Fund for the New Hall of the Philadelphia College of Pharmacy.* (*Continued from Page* 88, *of this volume*).

| | | | |
|---|---|---|---|
| A. H. Wirz, | $ 25 00 | A. C. Merritt, | 10 00 |
| D. Jamison, Jr., | 10 00 | Jos. B. Shropshire, | 5 00 |
| P. J. Hassard, | 50 00 | Nelson Shropshire, | 5 00 |
| John W. Biddle, | 25 00 | A. Roidot. | 15 00 |
| Geo. M. Fried, | 10 00 | Gilbert Royal & Co., | 50 00 |
| Whitall, Tatum & Co., | 100 00 | C. Collin Hughes, | 10 00 |
| John Lucas & Co., | 50 00 | G. W. Vaughan, | 10 00 |
| J. Thornton Weaver, | 10 00 | H. B. Taylor, | 10 00 |
| W. J. Jenks, | 50 00 | | |
| Wright & Siddall, | 10 00 | | $ 535 00 |
| William C. Bakes, | 10 00 | Previously, | 7487 50 |
| Crawford & Fobes, | 10 00 | | |
| Chas. A. Heinitsh, | 10 00 | Total contributions, | $8022 50 |
| Elliott, White & Co., | 50 00 | | |

# Editorial Department.

Legislation for Pharmacy in Pennsylvania.—The Press newspaper of Philadelphia, of Feb. 3d, contained an article speaking in highly disrespectful terms of the drug trade of Philadelphia for an alleged use of their influence in defeating a bill before the legislature on the subject of drug inspection, in which the editor says:

"The medical men of the City, (Philada.) seconded by the profession everywhere, besought the legislature to take such steps as would lead to the sale of only pure drugs."

Then follow the reasons why the law is required, giving an account of the practices alleged to be common in the adulteration of drugs and their effects on medical practice.

"The memorial closes by proposing a bill which provides penalties against adulterations and authorizes the appointment of an inspector of drugs similar to those of flour, whiskey, etc." But who was to have a large salary and extraordinary powers.

"This action on the part of the physicians, who really are the only ones who know the extent of the iniquitous practices they sought to provide against, aroused unwonted indignation among our druggists, and a bevy of the more irate armed with caustic (unadulterated this time) set off for the seat of war at the capital. Their medicines operated with instantaneous and powerful effect. The legislators were physicked out of their propriety, and the drug men returned home in triumph to sell without inspection what they pleased."

Now this last paragraph is an absolute myth—there is no truth in it; the druggists and pharmaceutists of Philadelphia were taken by surprise.

At the meeting of the Drug Exchange on that day no one knew anything of the matter, and a committee was appointed, who reported next day that all they could learn about it was that a Senator of Pennsylvania wrote down to a prominent member of the College of Pharmacy, to know whether the bill before the legislature. which he described, was approved by the College, etc. The member wrote back that the College and trade here knew nothing of it, that the bill contained features that would render its working impracticable, and would not reach the evils it sought to cure, and further that the National Pharmaceutical Association had had since September last a large and influential committee at work preparing a law to be presented to the legislatures of every State in the Union next winter, after it was approved by the Association which meets in September next. This was the only offence on which the vituperative article of the Press was based. We have made it our business to query of every prominent physician we have met, and, as yet, not a single one of them knew any thing about the memorial; but we have since learned more than we are disposed to repeat about the origin and objects of the bill to create a fat office, the incumbent to be nominated by a medical society and appointed by the Governor.

A temperate and well written reply was tendered to the Editor of the Press for publication, which he refused to receive, and subsequently, after being read at the Drug Exchange, that body adopted it, and signed by its officers it appeared in the Inquirer of Feb. 11th. The next day the Drug Exchange issued a printed memorial directed "to the Philadelphia Representatives at Harrisburg," requesting "that copies of any bill or bills regarding the manufacture and sale of drugs and medicines be forwarded to that body, as also to the Philadelphia College of Pharmacy." "They also respectfully ask that any proposed legislation on the subject be postponed until a proper representation of the subject be made by the Executive Board of the Philadelphia College of Pharmacy." "It is the wish of this body, as also of the College of Pharmacy, that such legislation be effected as will afford a *real safeguard* to the public on the important subjects of Medicines and the Sale of Poisons."

Disappointed in their first attempt, another bill was entered, styled "An Act to prevent adulteration in drugs," in four sections; the *first* declaring the adulteration of any drug or medicinal preparation to be a penal offence, recognizable by the Court of Quarter Sessions, with a penalty fine not exceeding 1000 dollars.

The *second* declares that every person violating the provisions of this act may be presented by the District Attorney to the Grand Jury for indictment, as in other cases. So far all is unobjectionable, but section *third* provides that any resident physician of the county, who is a "graduate of medicine and pharmacy," may complain under oath or affirmation before any alderman or justice of the peace, that there is reasonable ground for believing the Act has been violated, said complainant may

file a list of such alleged adulterated articles, and may obtain a search warrant, directed to any constable, who shall accompany him (the com plainant) to said store or factory and bring the said drugs and their owner or custodian before said alderman to be dealt with according to law.

The *fourth* section provides for the destruction of the adulterated drugs by the Court of Quarter Sessions.

On the reception of a copy of this bill, a meeting of the Board of Trustees of the College of Pharmacy was called at once. The proposed law was read and also the action of the Drug Exchange in regard to the matter. After a free and candid interchange of opinion, the present bill was declared to be wholly inadequate to remove the evil aimed at, and in practice took no cognizance of the greater evil of incompetent and uneducated dispensers, and could not be carried out without an amount of injustice and oppression at variance with the rights of citizens and the character of the pharmaceutical body. As the action of the Legislature on *some* bill seemed imminent, a committee was appointed to act in concert with those members of the Association's Committee, residents in Philadelphia, to draft a law, based on the yet unperfected law of said committee, and submit it to an adjourned meeting of the Board. This joint committee met and soon found that the bill would prove a failure if time was not given to consider it closely, especially in relation to the education and qualification of all apothecaries establishing stores in future; which being reported to the Board, it was deemed both wise and respectful to appoint a committee of their body to proceed to Harrisburg and explain the whole matter clearly to the judiciary committeeand to such other members of the Senate and House as opportunity offered. The committee, Professors Parrish and Maisch, were well received at the State Capital performed their duty, and returned with the understanding that an effort would be made to suspend any hasty legislation on the subject until next session, so as to give time to the American Pharmaceutical Association to perfect its draft of a law covering the whole subject of Drugs, Poisons and Education.

Why this persistent effort *in the name of the Physicians of Philadelphia* should be prosecuted so vigorously to bring about an inspection of drugs, when the subject, much more important to physicians, of the proper qualifications of those who deal in and dispense them is wholly overlooked we cannot divine, but the whole affair looks like a short-sighted effort at special legislation gotten up for a purpose very far from that which appears on the face of the bill.

---

Legislation on Pharmacy in Ohio.—The attempt made in Cincinnati to induce the Board of Health to interfere in the practice of pharmacy, noticed at page 83 of last number, did not succeed. Since then, we learn from a Cincinnati paper, that Dr. W. Clendenin, health officer, brought forward a proposition applicable to physicians, midwives and

apothecaries, making it necessary for all, within a given time, to present proofs of their competency to practice medicine, midwifery and pharmacy. If the proofs thus presented were deemed insufficient, each medical man and midwife should within three days submit to a medical board of examiners nominated by the Board of Health, and each druggist or apothecary to a board consisting of three prominent druggists, and on refusal of any to so submit, they should be prevented from practicing within the limits of Cincinnati on penalty of fine. The questions and answers were to be in writing. Probably the Board found on consideration it was assuming powers not delegated, and that they had better leave such legislation to the State authorities.

Since then a bill has been brought before the Ohio legislature and has been pending some time, but Prof. Maisch has received information from a member of that body that it had been determined to postpone action on the subject until the American Pharmaceutical Association has time to perfect its proposed law in September, next, when they will consider its merits when presented. We hope the Legislature of Pennsylvania will adopt the same course.

---

To our Readers.—In the January number of this Journal, in commenting on the late serious poisoning case, we headed our article "Death caused by the ignorance of an apothecary and the bad writing of a physician." At the time of writing the article our knowledge of the prescription for Mrs Hecht was from published evidence and verbal statements; these, in connection with a prescription of the same physician, received and dispensed by us a few days after the sad event, in which the second letter of the abbreviation "Asafœt." was made more like a 't' than an 's' caused us to believe the latter was his usual way of writing the word, and that he had incurred a degree of moral responsibility thereby. Since then Dr. Philip DeYoung, the prescriber of the dose, called on us, feeling himself sorely aggrieved by our remarks, and invited us to go to the coroner and see the original prescription. This we have since done, and, contrary to our expectation found the word decidedly more legible than in the prescription received by us, the 's' being tolerably well marked, so as to spell Asafœt.

Under these circumstances it is due to truth to correct our record, and justice requires us to modify the opinion expressed in our January number so far as to say, after seeing the original prescription, that any apothecary of ordinary qualification should have been able to read it as the prescriber intended. We regret having caused Dr. DeYoung undeserved pain, his feelings already lacerated by the loss of his sister, a circumstance lost sight of at the time—in fact our comments, so far as the Doctor was concerned, were a second thought, intended mainly to show the vital importance of care in writing prescriptions, for the sake of the patient, as well as the apothecary, who is constantly running grave

risks in compounding prescriptions owing to the illegible manner in which they are often written. It seems to us, in view of the yet imperfect education of many to whose lot dispensing falls, that physicians should make their prescriptions so plain as to be read by even the *mediocre*.

---

The Commencement of the Philadelphia College of Pharmacy will be held in the Academy of Music, at noon, on the 23d of March, on which occasion the graduates of the present session will receive their degrees. This will be the first time the ceremony has taken place in the day time; the evening having heretofore always been selected in preference. The valedictory will be given by Prof. John M. Maisch.

---

Meeting of the Alumni.—We are informed by a Committee of this Association, that a meeting of its members will be held at three o'clock in the afternoon on the 23d of March, in the First Lecture Room of the New College Hall, followed by a social *conversazione*; after which "a Tea will be served in the lower Hall, when short addresses will be delivered by members of the various classes in attendance." The Committee further say that "cards of admission will be issued at $1.50 each; and in order to facilitate their arrangements, it is desirable that those who wish to attend should procure their tickets of the Committee, (Messrs. Clemmons Parrish, 800 Arch Street; Charles L. Eberle, Germantown; Samuel T. Jones, 15th and Race Sts., and William C. Bakes, 800 Arch St.), before the 18th of March.

---

Maryland College of Pharmacy.—Safely put aside for notice, the *Circular* of the Maryland College lay ensconced, where it has just been discovered. We don't remember when it was received, but presume about the time of the meeting of the Association, when all were busy. An apology is due to our Baltimore friends for this oversight, as it has always been our wish to notice these circulars when received. Though too late to be of service to their school, it is not too late to say that the officers of the College, when the circular was issued, were Geo. W. Andrews, *President;* J. Faris Moore and E. Walter Russell, *Vice-Presidents;* I. P. Frames, *Secretary;* J. Brown Baxley, *Treasurer;* W. S. Thompson, J. F. Hancock and N. H. Jennings, *Examiners.*

The Faculty consists of J. Faris Moore, M. D., *Prof. of Pharmacy,* T. H. Helsby, M. D., *Prof. of Chemistry,* and Claude Baxley, M. D., *Prof. of Materia Medica.*

The circular is gotten up in a spirit and style unexcelled by that of any other school of pharmacy, and calculated to give a favorable impression of the management of the Maryland College of Pharmacy.

---

Svapnia and Sweet Quinine.—Svapnia is a trade name applied by Frederick Stearns to the purified titrated extract of opium, suggested by Dr. J. M. Bigelow, of Detroit. The merits claimed for it are, first, that

it is uniform in morphia strength, second, that it contains only the alkaloids morphia, codeia and narceia, combined with meconic (and perhaps thebolactic) acid. How far the manufacturers will be able to keep the composition uniform we do not know. If they can do what they claim to do, the preparation certainly merits attention. Neither the label nor the accompanying wrapper give the actual morphia strength, which, as it is said to be uniform, should be given. It is to be regretted that a substance so costly as opium should be rendered yet more so by making it a speciality. In our next we propose to give some further remarks in relation to this preparation, meanwhile hazarding the opinion that, medicinally, it is not better than the deodorized tincture of the Pharmacopœia.

*Sweet Quinine*, another novelty, is, according to the wrapper, quinia molecules coated with glycyrrhizin. That is to say, the alkaloid quinia, as precipitated from the sulphate, intimately admixed with the sugar of liquorice. It follows that it is necessary to avoid the use of acid or spirituous solvents in connection with sweet quinine, which immediately develop the bitterness, one by salifying the alkaloid, the other by dissolving it. The quality of liquorice to mask the taste of quinine, aloes, &c., has long been known to some persons, and we know one physician who has long prescribed it with this view. There is no doubt that the opinion of Mr. Harrop, at page 117 of this number, is correct, that the glycyrrhizin in commercial extract is altered by heat, and that fluid extract of liquorice root is better than a solution of the extract for mixtures. We should think Tilden's extract of liquorice root, made in vacuo, would be far superior to the imported for this purpose.

---

Gorden's "Concentrated Glycerin."—The manufacturer of this article has sent us a bottle, as a specimen of his production, of the grade indicated by the above name. It is colorless, has a very slight odor only, and is not affected by oxalate of ammonia or nitrate of silver.

Its specific gravity, carefully reduced to 60° F., indicated by a good Berlin hydrometer, is 1·231. It is therefore not quite so dense as the Pharmacopœia requires, yet for many purposes it will replace the purest "inodorous glycerin," which he also makes. The price of this article is quoted at 35 cents per pound wholesale. The multiplied uses of this most valuable substance in pharmacy and the arts renders the reduction of its price a benefit to society, like that of the artificial process for soda was in the soap manufacture.

---

Crew's Extract of Beef.—Our attention has been called to this new variety of extract of beef, which claims to be made in vacuo and from non-gelatinous portions of the beef, so that it is entirely free from gelatine. Its consistence is that of thick honey; it is entirely and readily soluble in cold water. It is not coagulated by heat, but is precipitated by alcohol and by tannic acid. It is neatly put up in porcelain jars, two

ounces in each and capped. Each jar represents 3½ pounds of beef, or 28 times the weight of the extract. Our preference has been in favor of the solid gelatinous extract, as keeping better, but we are informed that this non-gelatinous extract has been much liked by those who have tried it.

---

ERRATUM.—At page 5 of the last number, line 4 from the bottom, read "farther hole" instead of "father's hall."

---

*A History of the Medical Department of the University of Pennsylvania from its foundation in* 1765, *with sketches of the lives of deceased Professors.* By Joseph Carson, M.D., Prof. of Materia Medica and Pharmacy in the University, &c., &c., Philadelphia. Lindsay and Blakiston, 1869; pp. 227, octavo.

In the preparation of this book Dr. Carson has spared no labor that would add to its completeness, and in *it* he has made a valuable addition to the literature of medicine in America, by giving so minutely the gradual steps followed by the oldest Medical Institution in the United States in attaining to its present justly deserved position. The long list of medical worthies directly and indirectly connected with the University renders the biographical portions of the book full of interest. Originally written as an introductory lecture on the centenary anniversary of the School of Medicine of the University in 1865, these sketches were necessarily brief, but after deciding to enlarge the scope of the work and continue it to a later date, these notices were extended, and numerous foot-notes introduced. The notices of Griffitts, Wister, Rush, Barton, Coxe and Hare, have much interest to the pharmaceutist. The former in 1788, after his return from Europe, made the initial effort in favor of a national pharmacopœia by causing the appointment of a committee of eight of the College of Physicians, which included the names of Shippen, Rush, Griffitts and Wister, but it was not until 1820 that the seed thus sown bore fruit in the first National Pharmacopœia of 1820. The influence of Barton on the culture of the Natural Sciences, and especially of Botany, by his personal exertions, patronage of others, and the influence he exerted on and through his pupils, has left a lasting impression on science in America.

The circumstances indirectly connecting the University with the foundation of the Philadelphia College of Pharmacy, as quoted by Prof. Parrish, (see page of this number, are fully given by Dr. Carson from the minutes of the University.

In speaking of Dr. Hare, an opportunity was afforded to bring together the history of the discovery of the oxyhydrogen blow pipe and other suggestions, which have been dealt with unfairly abroad. The importance of that discovery on the metallurgic process for the working of platinum and other refractory metals, first suggested by Dr. Hare, and afterwards greatly improved by the labors of Deville and others, should cause him to be held in lasting remembrance.

But our space is exhausted, leaving unnoticed much that would interest our readers from the attractive pages of Dr. Carson's book, relative to Drs. Chapman, Coxe, and others. The long and intimate connection of the Professors of the University Physicians with the Pennsylvania Hospital and the Alms House, has called forth a chapter on Clinical Instruction. Previously to 1834 the clinics had always been delivered at the bed side, to the obvious inconvenience if not injury of some patients. In that year the present method of assembling the class in the amphitheatre, and presenting such of the patients as were desirable to them in clinical lectures, was introduced by Dr. Benjamin H. Coates, then senior physician. There is also a chapter on the history of the buildings occupied by the University of considerable interest to Philadelphians, but we will merely say that the corner stone of the present structure was laid on the 21st of March, 1829, just forty years ago. From the beginning the University has graduated nearly eight thousand pupils, nearly three fourths of whom issued from the present Hall.

---

*Proceedings of the American Pharmaceutical Association, at the Sixteenth annual meeting, held in Philadelphia, September*, 1868; also the Constitution and roll of members. Philadelphia, 1869. Pp. 506. Oct.

Just as we are closing this form the Proceedings of the Association, now in the hands of the binder, are submitted to us in sheets, too late to prepare a fitting notice, yet some of its features may be mentioned. The minutes of the seven sessions occupy more than a hundred pages, much of it in small type, and includes nearly the whole of the stenographer's report of the discussions, many of them of great importance, in relation to questions interesting pharmaceutists generally, as that on the renewal of prescriptions, and that arising out of the Report on the Drug Trade; also the comments upon the papers read, giving the experience and views of the members on the same subjects. The *Report on the Progress of Pharmacy*, which we have not had the opportunity to more than glance over, is very comprehensive, covering about 150 printed pages. Mr. Diehl has had heavy labor in getting it together, especially as a large portion is derived from the German Journals. The Secretary informs us that the French Journals are not received by him in exchange for the Proceedings, as they should be. This may be remedied by correspondence. *The Report on the Drug Market*, with its accompanying tables, occupies about forty pages, that on *Legislation relating to Pharmacy* about the same, and the special reports on scientific subjects and volunteer essays about 90 pages. (Most of the latter have been printed in this and the preceding number of this Journal.) The Secretary has made out the roll on a new plan. The names of members are arranged under the towns and cities, and these under the names of States, in their alphabetical order. The members in each town or city are in alphabetical order, but with the given name first. This has involved much labor, but

it will greatly facilitate the use of the roll for reference, and in mailing the Proceedings and sending letters and notices.

The delay which has attended the publication of the Proceedings has arisen partly from the unusual character and volume of the reports, and partly from the time required to perfect the roll and to get the extra copies of reports printed. The Secretary has had an unusual amount of labor, and the Association may well be satisfied with the manner in which the labor has been performed, both by him and the Chairman of the Executive Committee.

The paper is unusually good, and we are informed that the binding will be in keeping. The price fixed on by the Committee is $2.50.

We hope to give the reports a careful examination hereafter.

---

*A Conspectus of the Medical Sciences;* comprising manuals of anatomy, physiology, chemistry, materia medica, practice of medicine, surgery and obstetrics, for the use of students. By Henry Hartshorne, M.D., &c., &c., with 310 illustrations. Philadelphia; Henry C. Lea, 1869; pp. 1002, 12 mo.

This work is analagous in construction to Smith and Neills' compend of Medicine, published originally about twenty years ago. Like it, the present work is intended as an aid to the student in his battle with the numerous voluminous text books which oppose his onward course in attaining his diploma within the short period of study now deemed sufficient to pass the examinations. To some, such aids are not needed—such minds are capable of selecting and retaining a grasp on knowledge, whether presented by the lecturer or the complier—their faculties are directed like the rays by a lens to the very point needed, attain the object and lay it by for future use. On the other hand a larger number, less favored by nature, have to seek every artificial aid that presents itself to enable their minds to grasp and retain the numerous intricate principles of the Medical Sciences, and to remember the endless details of anatomy, materia medica, and of those all important practical truths involved in medical practice. To such the "Conspectus" of Dr. Hartshorne will prove a boon—for it is carefully written, well arranged, and in some parts admirably illustrated. Some errors have crept in, the most important we have noticed is giving the strength of Magendie's solution of morphia, (page 757), at 2 grs. per fluidounce instead of 16 grains. Some errors of the press also, as the wrong names are placed under the illustrations at pages 454 and 451. The book is well bound in sheep.

---

*Pronouncing Medical Lexicon.* Containing the correct pronunciation and definition of terms used in medicine and the collateral sciences. With addenda, &c. By C. H. Cleaveland, M.D. Eleventh edition. Philadelphia. Lindsay & Blakiston, 1869; pp. 302, 18 mo.

This useful little companion to the medical reader is here offered in its

*eleventh* edition, which of itself is a strong evidence in favor of its usefulness. We have often derived aid from its brief definitions. "Doctors disagree" in the matter of pronunciation as well as in the more professional matters. Those who will take the pains to study the characters given by Dr. Cleveland, will find them a profitable aid, but we prefer the ordinary method of indicating pronunciation.

---

*Essentials of the Principles and Practice of Medicine. A hand book for Students and Practitioners.* By Henry Hartshorne, M.D., Prof. of Hygiene in the University of Pennsylvania, &c., &c. Second edition, revised and improved. Philadelphia. Henry C. Lea, 1869; pp. 450, 12 mo.

Sometimes more is said in a paragraph by one than in a chapter by another. Earnest endeavor at perspicuity and terseness, with a methodical arrangement of facts, avoiding all unnecessary repetitions, will enable a qualified writer to condense a subject even so complex in its bearings as practical medicine into a comparatively small space, and in such a manner as to be very useful to the practitioner in recalling his past reading, and to the student in enabling him to grasp subjects more easily than he would be able to do with a large treatise. Of this character is the book of Dr. Hartshorne; no matter to what important disease the reader turns, he finds it brought out in miniature so that its features may be recognized nearly as well as in a larger portraiture. The country practitioner will find it a useful and readily portable companion.

---

*The Physician's dose and symptom book*, containing the doses and uses of all the principal articles of the materia medica and officinal preparations, &c., &c. By Joseph H. Wythes, A.M., M.D., &c. Eighth edition. Philadelphia. Lindsay & Blackiston, 1868; 18 mo, pp. 263.

After passing through *eight* editions this little book must be well known to medical practitioners as an aid to memory in prescribing. The medical journals should give it a critical examination in regard to doses.

---

*The American Edition of the Chemical News* is now published monthly, with an "American supplement" edited by Prof. C. A. Seely. Price per number 50 cents, or per year $5.00. It would be an improvement if the date of the English number was indicated in the line in brackets at the foot of the page, thus:

[English edition, Vol. xviii, No. 471, Dec. 11th, page 278.]

---

*Half Yearly abstract of the Medical Sciences*, being a digest of British and continental medicine, and of the progress of medicine and the c lateral sciences. Vol. xlviii, July to Dec., 1868. Philadelphia, H. C. Lea, 1869, pp. 292.

*Braithwaite's Retrospect of practical Medicine and Surgery.* Part lviii, Jan., 1869. W. A. Townsend & Adams publishers. New York, pp. 308.

Our thanks are due to the publishers respectively for these useful semi-annuals, which are full of valuable medical information.

## OBITUARY.

Dr. Von Martius.—Died, on the 13th of December, 1868, in the 75th year of his age, Dr. Carl Friedrich Philipp Von Martius, ex-Professor of Botany in the University, and Secretary of the Mathematico-physical Class of the Academy of Sciences at Munich, Foreign Member of the Royal and Linnean Societies of London, and of the Pharmaceutical Society of Great Britain.

Few names among the philosophers of Germany occupy a higher place than that of this eminent savant, whose brilliant and versatile genius and unceasing activity enriched all branches of literature and science. Among botanists Dr. Von Martius will ever be remembered as the author of a grand work on palms, in three splendid folio volumes, which it took 27 years to complete; and also for his Flora of Brazil, a work of even greater magnitude, commenced in 1840, and still carried on with the coöperation of other botanists. He also wrote two small publications on Brazilian Materia Medica, and numerous papers on ethnographical and philological subjects. In private life Dr. Von Martius was remarkable for his amiability and great conversational powers.—*Pharm. Jour.*, Feb., 1869.

Edwin R. Smith died on the 10th of November, 1868, at his home in Monmouth county, Illinois, at the age of 29 years, from hemorrhage of the lungs. Mr. Smith graduated in the scientific department of Monmouth College, Class 1860, and in 1862 he became a Graduate of Pharmacy of the Philadelphia College of Pharmacy, in order that he might secure the requisite qualifications for his future profession, in which it was his highest ambition to excel. Since his graduation at Philadelphia he had been associated with his father in business, where, from his thorough knowledge of his profession, devotion to business, and unbending integrity, few gave promise of a more useful life, or the enjoyment of a larger measure of respect and confidence in the community among which he dwelt. He was also an active member of the American Pharmaceutical Association, of which he became a member in 1862. A. E. E.

John E. Corbidge died on the 29th of January, 1869, at his home in Chicago, Ill., at the age of 25½ years. He had but of late returned to this city, having been absent for two years at Philadelphia, attending the lectures of the Philadelphia College of Pharmacy, of which he became a graduate in March, 1868. Shortly after his return he contracted disease of the lungs, which terminated his career of usefulness. A. E. E.

Dr. William B. Herapath, of *Bristol, Eng.*, eminent as a toxicological chemist, (and son of the late Dr. W. Herapath, whose decease was recorded last May,) died in October last in his 48th year. Dr. Herapath possessed an active mind, and pursued chemistry with so much success that his discoveries won for him membership in the Royal Society and other learned bodies. The discovery and investigation of the sulphate of iodoquinia and the corresponding salts of the other cinchona alkalies, is that by which he is best known, though his observations have been quite numerous. He leaves a widow and six children, and is deeply regretted by a large circle of professional friends,